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ABSTRACT

The Lifelong Learning Demonstration (LLD) in the Greater Baltimore area was designed to encourage adult workers to invest in education and training (ET) to upgrade their skills, productivity, and earnings. To test achievement of this objective, an evaluation estimated LLD's impact on school enrollments, number of credits earned, receipt and amount of financial aid, and receipt and amount of Federal Direct Student Loans. Over 200,000 people in the sample were randomly assigned to treatment and control groups. LLD did not have a statistically significant impact on educational outcomes during the two-year follow-up period. The treatment--a brochure providing comprehensive information on ET opportunities and making it easier to acquire more career, school, and financial aid information--was not a strong enough intervention to change workers' behavior. LLD did not have an impact on ET participation. Younger adults, females, single workers, workers with postsecondary degrees, and people with outstanding loans were more likely to participate in ET. Nearly 75 percent of students had some college education; over half were married; over half were over age 35; more than 70 percent worked for employers who offered tuition reimbursement; mature incumbent workers bore significant costs to participate in ET; and students made a number of lifestyle adjustments to participate in ET. (Contains 28 references.) (YLB)

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The Lifelong Learning Demonstration: Final Evaluation Report on the Experimental Site

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The Lifelong Learning Demonstration:

Final Evaluation Report on the Experimental Site

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Much of what we know about the schools that participated in the demonstration and their interactions with adult students we owe to our colleague Michelle Wood, who, together with our former colleague Terri Thompson, conducted the process analysis in the experimental site. Similarly, the focus groups conducted by Ms. Thompson were instrumental in shaping our understanding of the issues facing mature incumbent workers considering further education and training and, therefore, the design of the follow-up survey. Ms. Wood and Ms. Thompson also led the highly successful effort to obtain data from participating educational institutions for academic years 1995-97, a task that was carried out for academic year 1997-98 with equal success by Rhae Parkes. Dhushyanth Raju made a major contribution to the literature review presented in this report and to the development of the demonstration data base. Our survey director, John Straubinger of Abt Associates' Survey Area, managed the difficult task of tracking the follow-up survey sample in order to achieve an excellent response rate. Invaluable support in the design and implementation of the demonstration public information campaign was provided by Max Elsman of Cygnet Associates and David Alecock of Infosystems.

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Overview: Final Report on the Lifelong Learning Demonstration

by Larry Buron, Larry Orr, and Satyendra Patrabansh, Abt Associates

The U.S. Department of Labor initiated the Lifelong Learning Demonstration to test strategies for promoting continuing education and training among mature incumbent workers (individuals age 25 and over with recent work experience). To encourage investment in upgrading skills, the demonstration conducted a targeted public information campaign that provided information on the benefits of additional education and training and financial aid options — including the then-new Federal Direct Student Loan (FDSL) program— and made it easier for the target population of mature incumbent workers to obtain information about education and training opportunities at local educational institutions.

A rigorous evaluation with a randomly assigned treatment and control groups was conducted to measure the impacts of the information campaign on school enrollments, the number of credits earned, the receipt and amount of financial aid, and the receipt and amount of FDSLs. The demonstration did not have a statistically significant impact on any of these educational outcomes during the two-year follow-up period (1996-98). However, the demonstration produced an unusually large and rich data base on this important population, including administrative data on earnings, school attendance, and financial aid for a sample of over 330,000 mature incumbent workers and, for a subsample of 3,600, personal interviews about their education and training experiences during the follow-up period. Thus, the demonstration provides a rich source of information for analyzing questions relating to the education and training activities of mature incumbent workers.

One such question is identification of the factors underlying the decision of adult workers to acquire additional education or formal training. Consistent with qualitative and descriptive findings in prior research, we found that younger adults, females, single (never married) workers, and workers with post-secondary degrees are more likely to participate in educational activities. We also analyzed the effects of a number of measures that have not been available to previous researchers, including workers' perceptions of the expected benefits of additional education and training; barriers to obtaining additional education (prior

school loans, presence of children and young children); factors that could help alleviate the financial barriers (high earnings, employer tuition reimbursement programs); and "trigger" events (changes in marital status, changes in the presence of children in the household, and involuntary job loss). Those who expected benefits that would help them on their current job were statistically significantly more likely to participate in an education or training program. Adults with outstanding loans were more likely to participate during the follow-up period (suggesting that presence of a prior school loan is an indication of a strong taste for education), but none of the other measures of barriers or barrier alleviators had a significant association with the decision to participate in school. The only trigger event that had a significant effect on participation in educational activities was a change from at least one child to none living in the household (e.g., when the last child left home), which was positively correlated with males' decision to acquire additional education or training.

Approximately one sixth of the workers in the follow-up survey sample participated in a formal education or training program lasting more than two weeks during the two-year follow-up period. Nearly 40 percent of these students attended two-year colleges and a quarter went to four-year undergraduate institutions. Students pursued a wide range of programs; the most common courses of study were computer and information sciences (21 percent of all students), business and management (17 percent), and education (12 percent). Most attended nights or weekends, and over half took 6 or fewer semester credit-equivalents in a spell of education or training.

Mature incumbent workers bore significant costs to participate in education and training. The average cost of tuition was $2,661 during the follow-up period; however, 41 percent of tuition costs were below $500 and only 14 percent were above $5,000. The most important source of assistance in meeting these costs was tuition reimbursement by employers; over 40 percent of the students received an average of $2,916 each from this source. Over 80 percent of those who applied for government or school financial aid received it, but only a small proportion (12 percent) applied for this type of assistance. Loans from these sources averaged $5,056 and grants or scholarships averaged $2,430.

Executive Summary

Increasingly competitive global markets and accelerating technological changes have increased the need for incumbent workers to regularly upgrade their knowledge and skills, not only for their own job security, but also to ensure the competitiveness of U.S. companies and the continued success of the economy. In an effort to test strategies for promoting continuing education and training among mature incumbent workers (individuals age 25 and over with recent work experience), the U.S. Department of Labor (DOL) initiated the Lifelong Learning Demonstration. The demonstration included designing and testing a targeted public information campaign promoting lifelong learning to mature incumbent workers in the Greater Baltimore area. To encourage investment in upgrading skills, the public information campaign provided information on the benefits of additional education and training and financial aid options — including the then-new Federal Direct Student Loan (FDSL) program— and made it easier for the target population of mature incumbent workers to obtain information about education and training opportunities at local educational institutions.

This report presents the findings from the Baltimore-area demonstration on the impact of the public information campaign, workers' decision-making process and barriers to investing in additional education, and characteristics of the adult students and their schooling experiences.

Overview of the Demonstration

In early 1995, the U.S. Department of Labor (DOL), with the assistance of the Maryland Higher Education Commission (MHEC), recruited 12 educational institutions in the Greater Baltimore area to participate in the Lifelong Learning Demonstration. These institutions' roles in the demonstration were to provide input to the brochures and informational materials used in the public information campaign, to disseminate information to workers who expressed interest in their education and training courses, to provide data for the demonstration evaluation, and to offer FDSLs as a financing option. These institutions were diverse in type, including community colleges, private career schools, and four-year colleges and universities.

In June 1995, DOL contracted with Abt Associates Inc. and its subcontractors, Cygnet Associates and Battelle Memorial Institute, to implement and evaluate the Lifelong Learning Demonstration. The demonstration sample of mature incumbent workers was identified using a combination of demographic data provided by a national consumer data vendor and wage data from Maryland Unemployment Insurance earnings records. Mature incumbent workers were defined as individuals people age 25 or older who earned more than $1,105 (half time at the minimum wage) in at least six out of eight quarters just prior to the first demonstration mailing, including the quarter immediately prior to the mailing.

To test the effect of the targeted public information campaign using the most rigorous methods available, research sample members were randomly assigned to a treatment group who received the demonstration brochures and informational materials, and a control group who did not. The evaluation was also designed to collect data on the education and training experiences of both treatment and control groups over time. Hence, the demonstration also provides a rich source of information on the education and training activities of mature incumbent workers.

Over 200,000 people were selected for the main demonstration research sample (103,732 for the control group; 104,668 for the treatment group). Two mailings of informational brochures were sent to the treatment group, in June 1996 and October 1996. Brochure recipients were invited to return a postcard or call a toll-free number to receive additional information from any or all of the participating educational institutions.

Data for the analyses presented in this report were collected from participating schools (enrollment and financial aid records), the Maryland Higher Education Commission (enrollment records), the Maryland Department of Labor, Licensing, and Regulation (wage records), Experian, a national consumer data vendor (demographic and geographic data), and a follow-up survey of a subsample of the research sample, conducted approximately two years after the first mailing (data on educational activities and perceptions, employment, and background characteristics).

Impacts of the Demonstration on Educational Outcomes

The primary objective of the Lifelong Learning Demonstration was to encourage adult workers to invest in additional education and training to upgrade their skills and, therefore, their productivity and earnings. To test whether this objective was achieved, we estimated the impact of the demonstration on school enrollments, the number of credits earned, the receipt and amount of financial aid, and the receipt and amount of FDSLs. These outcomes were measured over a two year follow-up period for three different universes of education and training program: the participating educational institutions, all public educational institutions in Maryland, and all education and training programs reported on the follow-up survey. For the follow-up survey sample, we also estimated impacts on two intermediate outcomes: the percent considering attending a school or training program in the future; and the proportion of respondents who report that "finding out what schools offer the programs you want" is a big problem.

The demonstration did not have a statistically significant impact on any of these educational outcomes during the two-year follow-up period. We conclude that the treatment—a brochure providing comprehensive information on education and training opportunities and making it easier to acquire more career, school, and financial aid information—was not a strong enough intervention, by itself, to change workers' behavior in such a substantial manner. That is, going back to school can mean a radical change in a working adult's life and it would take a stronger intervention to appreciably increase the number of people enrolling in education and training institutions.

Although the demonstration did not test alternative interventions, consideration of the barriers to further education reported by sample members suggests some possible ways to strengthen the assistance provided to workers interested in upgrading their skills. For example, an intervention focusing on reducing the informational barriers to obtaining additional education and training—as the Lifelong Learning Demonstration did—might offer the opportunity of free or inexpensive career and academic counseling sessions. To be effective, these sessions would likely have to conducted in small groups, or even one-on-one, by someone knowledgeable about the job market and educational opportunities in the local area. One possibility is to provide counseling over the telephone. Convenience is a major

factor for working adults, so the sessions would need to be held at accessible locations and at times that are convenient for workers.

It seems likely that active employer involvement in such a program would substantially increase its effectiveness in motivating workers to undertake additional education and training. Workers' employers have detailed knowledge of their existing skills and the skills that would increase their productivity on the job. Moreover, employer involvement might help to avoid or resolve the conflicts between work and education that working students often face.

In addition to providing information, an intervention might provide financial assistance to overcome the time and cost barriers that studies (this study and other research) consistently find to be major barriers for adults. To maximize its cost-effectiveness, such assistance might be designed to leverage employers' funds. For example, the government might match tuition reimbursement provided by employers to workers who enroll in education or training programs. A program aimed at alleviating the lack of time barrier might offer partial reimbursement (e.g., a tax credit) to employers who offer paid time off for education and training activities.

Again, these suggestions are entirely speculative, based on the kinds of barriers to further education cited by sample members. They would need to be tested rigorously before being instituted on a large scale.

The Decision to Participate in Education and Training Programs

Although the demonstration did not appear to have an impact on participation in education and training, it did produce a wealth of information that can be used to analyze questions related to further education and training for mature incumbent workers. The first such issue we address in this report is identification of the factors underlying the decision to acquire further education. Any policy designed to encourage experienced workers to upgrade their skills must be grounded in an understanding of these factors.

In our review of the literature, we found few authors who attempted to present a comprehensive model of the decision-making process of adults considering returning to school. Studies by economists tend to focus on education and training as an investment in

human capital, emphasizing costs (both out-of-pocket and opportunity costs), economic returns, and tastes and preferences. In the non-economic literature, the most complete model of the decision-making process is the chain-of-response (COR) model developed in Cross (1981). In this report, we interpret the COR model within an economic decision-making framework, then develop a multivariate model of the decision-making process using specific measures of the general factors suggested by this model.

The COR model describes the decision to participate in a learning activity as the result of a chain of responses. The first link in the chain is personality characteristics and attitudes about education (e.g., confidence in academic abilities and motivation for achievement). In an economic decision-making framework, this link in the chain can be thought of as "tastes and preferences for education." That is, an individual's personality characteristics and attitude toward education determine how positive they feel about participation in an education or training program and thus how large the expected net benefit of the activity must be to induce them to participate.

The second link in the COR model is the goals that individuals may achieve through additional education and training and the importance of these goals. An individual's evaluation of the consequences of participation is based on the subjective probability of succeeding in the activity, the probability of achieving desired goals if the educational activity is successfully completed, and the importance the individual places on these goals. In an economic framework, this link in the model can be thought of as the calculation of the expected benefits of participation. In the COR model, the first two links determine the person's motivation to participate in education and training activities.

Life transitions can affect the motivation to participate. Triggering events for life transitions include such events as job layoffs, divorce, or the youngest child leaving home. These triggering events lead to transitions from one status to another (e.g., from one career to another), requiring preparation for a new stage of life. This may increase the benefit of learning new skills.

The third link in the COR model is the barriers and opportunities to participation. Barriers include tuition and course-related expenses, informational costs such as finding out about programs of interest, the opportunity cost of the time needed to participate, and scheduling around work and family responsibilities. Obviously, the fewer the barriers the

less motivation that is needed to participate. Likewise, the more motivated a person the more barriers they will overcome to participate. In an economic framework, barriers can be thought of as the costs of participation.

In summary, tastes and preferences for education and the expected benefits of participation determine the motivation to participate and the level of barriers or costs a person is willing to overcome to participate in education and training activities.

Consistent with qualitative and descriptive findings in prior research, we found that younger adults, females, single (never married) workers, and workers with post-secondary degrees are more likely to participate in educational activities. We interpret the age effect as reflecting the longer payback period for younger workers. The other effects probably reflect a combination of tastes for education (females and those with advanced degrees) and lower opportunity costs (single workers). Prior research on recent high school graduates finds that blacks are less likely than whites to pursue college, but there is no significant differences in enrollment rates when family income, socioeconomic status, and academic background are controlled for in the model. Like this research on young adults, we found no racial differences in participation in formal education and training programs among mature incumbent workers in the model that controlled for income and other factors. However, in contrast to prior studies, we also found that there were no significant differences in participation across racial groups in the study population of mature incumbent workers even when we did not control for other background factors.

We also included in the model several measures of the workers' perceptions of the expected benefits to them of additional education and training. Those who expected benefits that would help them on their current job were statistically significantly more likely to participate in an education or training program. The other expected benefit variables had the hypothesized positive sign, but were not statistically significant.

Several variables indicating barriers to obtaining additional education (prior school loans, presence of children and young children) and variables that could help alleviate the financial barrier (high earnings, employer tuition reimbursement programs) were also included in the model. Prior research has indicated that having outstanding school loans may be a barrier to participation in educational activities. However, our analysis indicates that people with outstanding loans were more likely to participate during the follow-up

period. This suggests that presence of a prior school loan is an indication of a strong taste for education. None of the other measures of barriers or barrier alleviators had a significant association with the decision to participate in school.

As part of this analysis, we tested whether "trigger" events that occur during the follow-up period have an effect on participation in educational activities, as suggested by the COR model. Triggers events mark the transition from one status to another and can lead to a reassessment of the costs and benefits of obtaining additional education and training. The trigger events that we measured include changes in marital status, changes in the presence of children in the household, and involuntary job loss. The only one of these variables that had a statistically significant effect on participation in educational activities was a change from at least one child to none living in the household, which was positively correlated with males' decision to acquire additional education or training.

Finally, we modeled the decision to begin exploring educational opportunities by requesting information about local schools in response to the demonstration brochure and the subsequent participation in education and training programs by brochure respondents. We found that the factors that lead workers to take the first step toward returning to school (seeking more information about educational opportunities) tend to be more objective, observable characteristics (e.g., age, unemployment) than the factors that determine which of these workers actually participate in an education or training program. The factors that determine which of these workers ultimately participate is likely a combination of unmodeled factors and the idiosyncrasies of individual situations.

Characteristics of Students and Their School Experiences

Approximately one sixth of the workers in our sample of mature incumbent workers in Greater Baltimore participated in a formal education or training program lasting more than two weeks during the two-year follow-up period. This figure does not include on-the-job training and training provided by the employer at the job-site.

Nearly three-fourths of these students had at least some college education at the beginning of the follow-up period, over half were married, and a similar proportion were over the age of 35. More than 70 percent of the students worked for employers who offered

tuition reimbursement. Consistent with the results of our analysis of the education decision-making process, the students tended to be younger and more highly educated than non-students, and were more likely to be female, single, and to have an outstanding school loan. Students were quite similar to other mature incumbent workers in their racial composition, presence of children in the household, and earnings in the pre-school period.

Nearly 40 percent of the students attended two-year colleges. A quarter went to four-year undergraduate institutions and a sixth enrolled in graduate programs. Private career or training institutions accounted for 19 percent of the students, with another 7 percent attending training courses provided by community-based organizations.

Students in the sample pursued a wide range of programs, with courses in computer and information sciences (21 percent of all students), business and management (17 percent), and education (12 percent) the most common areas of study. Most attended nights or weekends, and over half took less than 6 semester credit-equivalents in a spell of education or training. Over half graduated or completed their program during the follow-up period, and more than a third received a degree or certificate, most commonly a professional certificate or post-high school training certificate. Thirty percent were still enrolled at the end of the follow-up period; only 15 percent had not completed their program and were no longer enrolled.

Mature incumbent workers bore significant costs to participate in education and training. The average cost of tuition was $2,661 during the follow-up period; however, 41 percent of tuition costs were below $500 and only 14 percent were above $5,000. In addition to tuition costs, students paid an average of $259 for books and course materials and $19 per week in travel costs. The cost of child care arrangements for students who used paid child care varied from $70 to $111 per week.

The most important source of assistance in meeting these costs was tuition reimbursement by employers; over 40 percent of the students received an average of $2,916 each from this source. Over 80 percent of those who applied for government or school financial aid received it, but only a small proportion (12 percent) applied for this type of assistance. Loans from these sources averaged $5,056 and grants or scholarships averaged $2,430.

Students reported that they had to make a number of lifestyle adjustments in order to participate in education or training. The most commonly cited sacrifices, each named by more than 60 percent of the students, were reductions in the time available for leisure time activities and to spend with their families and friends. Smaller proportions reported cutting back on leisure activities or major purchases in order to save money for school. Only about a quarter reported that they had to reschedule their work hours in order to attend courses, and a sixth said that they had to reduce their work hours.

When asked to identify the most important services that schools could provide for working students, about equal numbers named job placement assistance, career counseling, academic counseling, and assistance in learning about and applying for financial aid. Nearly three quarters felt that it was very important that these services be available on weekends and at night during the week. The school loan features most frequently cited as very important were those that make the process less cumbersome and time-consuming: having a single application for all types of Federal assistance, loan consolidation, and direct disbursement of government checks to the school. Smaller, but still substantial proportions of students (35 to 45 percent) felt that flexible repayment options, such as income-contingent repayment, extended repayment, and tiered repayment, were very important loan features.

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Chapter 1

Background

Increasingly competitive global markets and accelerating technological changes have increased the need for incumbent workers to regularly upgrade their knowledge and skills, not only for their own job security, but also to ensure the competitiveness of U.S. companies and the continued success of the economy. As new companies form and existing companies downsize or otherwise realign themselves to meet the demands of the international market place, few people have the option of working for one company in a steady career path for their entire working life. Instead, workers must be prepared to change jobs, or even occupations, several times during their career. Hence, workers will need to be better educated to fill new jobs and to adapt to the changing knowledge and skill requirements of existing jobs. Likewise, in this dynamic marketplace, employers need workers who can fill the new jobs and who can adapt to the changing requirements of existing jobs so that companies can grow or realign themselves in reaction to market opportunities. With regular enhancement of workers' knowledge and skills to meet the increased flexibility and autonomy of today's workplace, economic growth will not be slowed by a mismatch of employer needs and worker skills.

In an effort to test strategies for promoting continuing education and training among mature incumbent workers (individuals age 25 and over with recent work experience), the U.S. Department of Labor (DOL) initiated the Lifelong Learning Demonstration. The demonstration included designing and testing a targeted public information campaign promoting lifelong learning to mature incumbent workers in the Greater Baltimore area. To encourage investment in upgrading skills, the public information campaign provided information on the benefits of additional education and training and financial aid options — including the then-new Federal Direct Student Loan (FDSL)[1] program— and made it easier for the target population of mature incumbent workers to obtain information about education and training opportunities at local educational institutions.

[1] The Federal Direct Student Loan program was authorized in 1993. Under this program, loans are made directly to students by the government, instead of the government guaranteeing bank loans to students as under previous federal loan programs.

This report presents the findings from the Baltimore-area demonstration on the impact of the public information campaign, workers' decision-making process and barriers to investing in additional education, and the characteristics of mature incumbent workers who participate in training or educational activities and their educational activities.

Demonstration Overview

The timing of key implementation steps in the Lifelong Learning Demonstration is depicted in Exhibit 1-1. In March and April of 1995, DOL with the assistance of the Maryland Higher Education Commission (MHEC),[2] began recruiting educational institutions from a comprehensive list of Maryland two- and four-year public colleges and universities, and private career schools to participate in the demonstration. Educational institutions had to meet only a few criteria to be able to participate in the Lifelong Learning Demonstration. They had to be willing to provide input to the brochures and informational materials, disseminate information to interested brochure respondents, and provide data for the demonstration evaluation. Finally, because the demonstration was not only intended to generate additional enrollments among mature incumbent workers, but also to encourage the use of Federal Direct Student Loans (FDSLs) as a financing option, educational institutions were also required to participate in this then-new loan program in order to be eligible for inclusion in the demonstration.[3] By September 1995, DOL had obtained the participation of twelve educational institutions in the Lifelong Learning Demonstration. As shown in Exhibit 1-2, participating educational institutions were diverse in type, including community colleges, private career colleges, and four-year colleges and universities.

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[2] Contact with MHEC was made with the support of the Maryland Department of Labor, Licensing, and Regulation (formerly the Department of Economic and Employment Development).

[3] An educational institution that was not participating in the FDSL program at that time, but was interested in participating in the demonstration was not immediately deemed ineligible. Instead, DOL secured the assistance of the U.S. Department of Education to enroll them in the loan program. The U.S. Department of Education had begun phasing in the FDSL program in the Baltimore area, but made special accommodations for schools wishing to participate in the demonstration. A few schools took advantage of demonstration participation as a way to convert to the direct lending program.

Exhibit 1-1
Timing of Key Implementation Steps

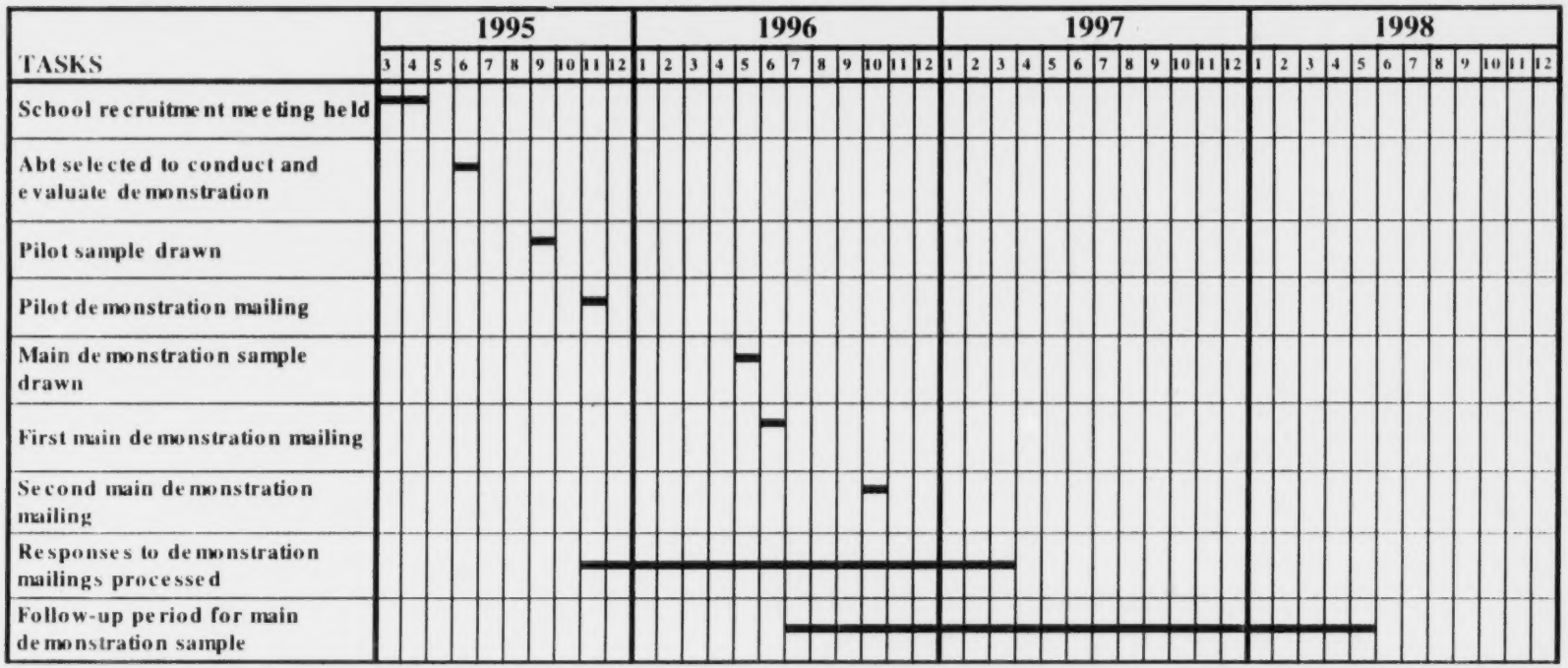
TASKS
1995
1996
1997
1998
3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12
School recruitment meeting held
Abt selected to conduct and evaluate demonstration
Pilot sample drawn
Pilot demonstration mailing
Main demonstration sample drawn
First main demonstration mailing
Second main demonstration mailing
Responses to demonstration mailings processed
Follow-up period for main demonstration sample

Exhibit 1-2
Participating Educational Institutions, by Type

Community Colleges	Private Career Schools	Four-Year Colleges and Universities
Catonsville Community College	Medix School	Coppin State College
Dundalk Community College	Fleet Business School	Johns Hopkins University School of Continuing Studies
Essex Community College	TESST Technology Institute (formerly Arundel Institute of Technology)	Loyola College in Maryland
		Towson State University
		University of Maryland Baltimore County
		University of Maryland University College

In June 1995, DOL contracted with Abt Associates Inc. and its subcontractors, Cygnet Associates and Battelle Memorial Institute, to implement and evaluate the Lifelong Learning Demonstration. The demonstration project tested the effects of providing comprehensive information on education and training opportunities, including expedited referrals to local educational institutions, on the subsequent education and training activities and labor market success of mature, incumbent workers. The demonstration consisted of two phases, the pilot demonstration and the main demonstration, and was conducted between November 1995 and March 1997.

The demonstration sample of mature incumbent workers was identified using a combination of demographic data provided by a national consumer data vendor and wage data from Maryland Unemployment Insurance earnings records.[4] Mature incumbent workers were defined as individuals age 25 or older who earned more than $1,105 (half time at the minimum wage) in at least six out of eight quarters just prior to the first demonstration mailing, including the quarter immediately prior to the mailing. To be eligible, demonstration sample members had

[4] See Appendix A for a description of each of these data sources and how they were used to identify demonstration sample members.

to live in the area from which at least one of the participating schools normally drew their students, Baltimore City and the five contiguous counties.

Information was provided directly to the target population through brochures and other informational materials mailed to them. To determine what informational materials might generate the greatest response among mature incumbent workers, Abt Associates and its subcontractor, Cygnet, designed four different sets of direct mail brochures, which were tested in the pilot phase. The brochure and informational materials for the main demonstration were selected on the basis of the results from the pilot. In the main demonstration, brochure recipients had the option to request information from any or all of the 12 educational institutions participating in the demonstration. These requests were referred to the educational institutions, who then sent program and/or admissions information to the respondent. Respondents were also sent *The Student Guide, Financial Aid from the U.S. Department of Education*, a booklet that describes the various types of federal financial aid available; and the *Self-Starter Guide for Adult Learning*, developed by Cygnet Associates for the demonstration, which reviews labor market trends and programs of study offered at participating educational institutions, and guides the individual through a self-assessment of career goals and financial needs. In an attempt to strengthen the effectiveness of the targeted public information campaign and allow ample opportunity for mature incumbent workers to pursue additional education or training, the main demonstration mailing was sent twice, once in June 1996 and again in October 1996. Requests for information were fulfilled for a nine-month period following the initial mailing.[5]

To test the effect of the targeted public information campaign using the most rigorous methods available, research sample members were randomly assigned to treatment groups who received the brochures and informational materials, and control groups who did not. Over 200,000 people were selected for the main demonstration research sample (103,732 for the control group; 104,668 for the treatment group). Random assignment generates treatment and control groups that are similar in all respects (including unobservable characteristics), except for one variant — the treatment groups received the informational materials. Therefore, any systematic difference in rates of pursuit of education or training can be attributed to the targeted

[5] The Interim Report (Buron *et al.*, 1998) contains an analysis of the implementation process including information on the timing and types of information requested by brochure respondents. It also contains copies of the main demonstration brochure and the *Self-Starter Guide for Adult Learning*.

public information campaign. The evaluation was also designed to collect data on the education and training experiences of both treatment and control groups over time. Hence, the demonstration also provides a rich source of information on the education and training activities of mature incumbent workers.

Report Overview

This is the second of two reports evaluating the effect of the targeted public information campaign. In the first report, we provided detailed information on demonstration operations, including recruitment of educational institutions, sample selection, the design of the brochures and informational materials, and procedures for responding to inquiries generated by the public information campaign. We also provided a descriptive assessment of responses to the campaign and preliminary estimates of the impact of the demonstration. Here, we will extend the impact analysis using a longer follow-up period and more comprehensive data, but otherwise do not repeat the information in the Interim Report at the same level of detail.

This report is organized as follows. Chapter Two first assesses the comparability of the treatment and control groups to demonstrate the integrity of the random assignment procedures then presents estimates of the impacts of the targeted public information campaign on enrollment, credit hours earned, and receipt and amount of financial aid at participating educational institutions. We supplement this analysis with information from two other data sources: an analysis of the impact of the demonstration on enrollment and credits at all Maryland public post-secondary institutions, using data from the Maryland Higher Education Commission; and an analysis of the impact of the demonstration on enrollment, credits earned, receipt and amount of financial aid, plans to obtain additional education or training in the future, and informational barriers to investing in additional education, using data from a follow-up survey of a subsample of demonstration members.[6] Chapter 3 contains an analysis of the decision to return to school, including perceptions of the value of education, barriers to returning to school, and a multivariate model to distinguish important factors in the decision to return to school.

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[6] The survey sample was selected using a disproportionate stratified sampling design (students and brochure respondents were oversampled), then estimates were weighted to reflect the same universe as the entire demonstration sample, mature incumbent workers in the Greater Baltimore area. See Appendix A for a full description of the survey sample design and survey content. Appendix E contains a copy of the survey.

Chapter 4 describes the characteristics of students and their schooling experience, including area of study, credits earned, degree sought and earned, and time of classes. It also examines barriers students overcame in order to participate, including education-related expenses and the use of financial aid, lifestyle adjustments, and perceptions of the importance of selected school services and financial aid features. Both Chapter 3 and 4 rely on information collected in the Lifelong Learning Demonstration Follow-up Survey for a subsample of 3,601 respondents.

Chapter 2

Impacts of the Demonstration on Educational Outcomes

The primary objective of the Lifelong Learning Demonstration was to encourage adult workers to invest in additional education and training to upgrade their skills and, therefore, their productivity and earnings. This chapter presents results regarding the effects of the demonstration on participation in education and training programs and courses during a two-year follow-up period.

To encourage investment in upgrading skills, the public information campaign provided adult workers with information on the benefits of additional education and training, made it easier for them to obtain information on educational opportunities at local institutions, and informed them about financial aid options, including the Federal Direct Student Loan (FDSL). The most direct potential impacts of the demonstration are on educational investments and the use of financial aid. Thus, the primary outcomes we investigate in this report are school enrollments, the number of credits earned, the receipt and amount of financial aid, and the receipt and amount of FDSLs. For a subsample (those selected for the follow-up survey), we also estimate impacts on two intermediate outcomes: the percent considering attending a school or training program in the future; and the proportion of respondents who report that "finding out what schools offer the programs you want" is a big problem. This is the type of barrier that the public information campaign was intended to help adult workers overcome.

We use data from multiple sources for the impact analysis. Outcome measures are from participating educational institutions' administrative records data provided by the Maryland Higher Education Commission (MHEC) for the entire main demonstration sample of over 200,000 people, and data collected through the Lifelong Learning Demonstration Follow-Up Survey for the subsample of 3,601 respondents. Ten out of the 12 participating institutions provided data on education and financial aid outcomes for the baseline period and for two years

after the start of the demonstration (Summer 1996 through Spring 1998 academic terms).[1] In addition to the outcome data from participating institutions, we also have data from the Maryland Higher Education Commission (MHEC) on enrollments and credits attempted in the Fall 1996 and Fall 1997 terms at all Maryland public post-secondary institutions. A third source of data is the Lifelong Learning Demonstration Follow-Up Survey administered by Abt Associates between May and December 1998. The survey provided data on education and financial aid outcomes during the follow-up period (July 1996 to June 1998) as well as respondents' perceptions of barriers they face in considering additional education and training. Finally, we use demographic data from Experian and earnings data from the Maryland Department of Labor, Licensing, and Regulation (DOLLR) to control for the baseline characteristics of the sample when estimating impacts. (See Appendix A for a full description of all the data sources.)

The first section of this chapter describes the characteristics of the adult workers in the main demonstration sample.[2] In the second section, we present the estimated overall impacts of the demonstration on educational outcomes at participating educational institutions, all Maryland public educational institutions, and at all institutions attended by the survey respondents. In this section, we also investigate impacts on subgroups of the sample defined by age, gender, race and predemonstration earnings, education, presence of children in the household, and school loan burden. The final part of this section summarizes our findings.

Characteristics of Sample Members

A key element of the demonstration design was the assignment of sample members to treatment and control groups. If the design and procedures for randomly assigning eligible workers to treatment and control groups were done correctly, then the workers in the two groups should be comparable and we can rely on differences in their outcomes to represent the impact

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[1] Two of the schools that participated in the demonstration, Coppin State College and University of Maryland University College, did not provide data for this report. A third participating school, Johns Hopkins University, only provided data from its School of Continuing Studies (the School that focuses on adult learners and responded to demonstration referrals) for the baseline and first follow-up year. In addition, usable financial aid data were not available from Johns Hopkins University in the baseline and first follow-up year.

[2] Appendix D contains similar descriptive information for students at participating schools compared to other adult workers (i.e., non-students). It also contains descriptive information on the schooling experiences of the students who attended participating institutions.

of the demonstration. A comparison of predemonstration demographic, geographic, and economic characteristics of treatment and control group members did not uncover any statistically significant differences between the two groups. Hence, we conclude that the treatment and control groups are, in general, valid experimental comparison groups. The results of this comparison are shown in Exhibit 2-1 and discussed below.[3]

As can be seen in the first panel of Exhibit 2-1, the mature incumbent workers in our sample cover the entire range of ages 25 and above, with almost half in the 36 to 49 age range. A slight majority of the sample members are males (53 percent). The most common area of residence is Baltimore County (the most populous area in our sample) containing about one-third of the sample members, with Baltimore City (21 percent) and Anne Arundel County (19 percent) being the next most common areas of residence. Median UI earnings in the year prior to the demonstration was $30,850, with 12 percent earning less than $15,000 and 6 percent earning more than $75,000. Finally, as shown in the bottom panel, only 2 percent of the sample members were enrolled in a participating educational institution the semester prior to the first demonstration mailing (Spring 1996).

Impacts of Lifelong Learning Demonstration

In this section, we report our estimates of the impact of the Lifelong Learning Demonstration. First, we discuss the hypothesized impacts of the demonstration and our methodology for estimating impacts. We then present our impact estimates for the entire sample at participating institutions, for the entire sample at all Maryland public educational institutions, and for the follow-up survey sample at any education and training institution. Following that, we present our impact estimates for subgroups of the overall sample at participating institutions and of the survey sample.

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[3] In addition to the characteristics shown in Exhibit 2-1, we compared the treatment and control groups on measures of estimated household income, marital status, and presence of children from the Experian data. These variables are not included in the exhibit because Experian data did not distinguish between missing data on these measures and unmarried or no children in the household, thus each variable was technically missing data for one-half to two-thirds of all sample members. Nevertheless the distributions of these variables (including missing values) were virtually identical for the treatment and control groups.

Exhibit 2-1
Characteristics of the Treatment and Control Group Members

Characteristic	Control Group	Treatment Group
Age in 1996[n.s.]		
25-35	28%	28%
36-49	48	48
50+	25	25
Gender[n.s.]		
Male	53%	53%
Female	47	47
City/county[n.s.]		
Anne Arundel County	19%	19%
Baltimore City	20	21
Baltimore County	35	34
Carroll County	7	7
Harford County	10	10
Howard County	10	10
UI Earnings, 1994 Q4 to 1995 Q3[n.s.]		
<$15,000	12%	12%
15,000-24,999	24	24
25,000-34,999	23	23
35,000-49,999	23	23
50,000-74,999	12	13
75,000+	6	6
Median UI Earnings[n.s.]	$30,850	$30,870
Attended participating institution(s) in semester before mailing[n.s.]	2%	2%

Sources: Maryland State Unemployment Insurance records (earnings); Administrative records of participating schools (attendance in prior semester; Experian data (all other characteristics)

Sample Definition: Entire main demonstration sample

Sample Size: 208,400 (control: 103,728; treatment: 104,672). Actual sample sizes vary slightly across cells due to missing data for characteristics.

Notes: [n.s.] indicates treatment-control difference is not significantly different at .10 level (chi-square test). Column percentages for characteristics may not add up to 100 percent due to rounding.

Hypothesized impacts of the demonstration. The demonstration was a public information campaign targeting currently-employed adults with strong labor force attachment (see Chapter 1 for an exact definition of the sample). The purpose of the campaign was to encourage workers to invest in further education and training by explaining the potential benefits and by reducing the cost and time required to find out about education and financial aid options. The public information campaign:

- provided information on the benefits of obtaining additional education or training;
- simplified the exploration of educational options by furnishing information on programs at 12 area institutions that might appeal to adult workers, as well as providing an easy way to get more information on opportunities at these institutions;
- made available a guide for career and education planning; and
- made available an information guide to federal financial aid sources.

By making this information readily available, the demonstration intended to reduce the informational cost of getting additional education and training. Hence, the most direct potential impact of this demonstration is increased enrollment in education and training institutions during the follow-up period. This is the first outcome measure we analyze. In addition to encouraging new enrollments, it is also possible that the demonstration might encourage adults to take more classes than they otherwise would —both by increasing the number of new enrollees and by encouraging all enrollees to take more classes than they would have taken in the absence of the demonstration. Our second outcome measure, therefore, is the number of semester credits earned in the follow-up period.

The demonstration also informed targeted workers about financial aid options, including FDSLs, available at participating institutions. With this additional information and potentially new enrollees, it is possible that targeted workers would be more likely to apply for and receive financial aid, especially a FDSL, during the follow-up period. To test this hypothesis, we analyze receipt of any financial aid, amount of financial aid received, receipt of a FDSL, and the amount of FDSLs received.

Even if the demonstration is not shown to impact actual enrollments and financial aid use, it is possible that it had an impact on intermediate outcomes. For the survey sample, we

analyze impacts for two potential intermediate outcomes. First, one of the barriers the public information campaign was intended to help overcome was the difficulty of acquiring information about programs available at local education and training institutions. Thus, we analyze the impact of the demonstration on the proportion of respondents who reported that "Finding information about what schools offer the programs you want" was a barrier to additional investment in education and training. Second, prior research (e.g., Aron and Nightingale, 1995) has shown that the decision to go back to school is a prolonged one, often taking several years before it is realized. Therefore, we also analyze the impact on the proportion of respondents who reported that they were considering participation in education and training programs in the next few years.

Before discussing the specific estimates, the next section describes the methodology used to estimate impacts.

Measuring impacts. As discussed in Chapter 1, the Lifelong Learning Demonstration is a controlled experiment with sample members randomly assigned to a treatment group that received brochures promoting education and training and offering further information about local educational institutions and student financial aid, and a control group that did not receive this information. This design produced treatment and control samples with highly similar characteristics (see Exhibit 2-1). Thus, statistically significant differences in average outcomes between the two groups can be attributed to the impact of the public information campaign. That is, a simple comparison between sample means indicates whether or not the demonstration had an impact.

In this report, we use a more precise framework for estimating impacts, a regression analysis that controls for individual-level characteristics. This approach increases the precision of the estimated treatment effects, while still providing unbiased impact estimates. We estimate impacts using an ordinary least squares framework, controlling for demographic characteristics, predemonstration UI earnings, and education-related activities in the semester prior to the demonstration.[4] Our estimation methodology is discussed in more detail in Appendix B.

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[4] Strictly speaking, the ordinary least squares method (or linear probability model) is not appropriate for estimating impacts on binary outcome variables such as whether or not the person enrolled during the follow-up period, because in extreme cases the predicted probability can lie outside the 0 to 1 range. We use this approach for all outcomes, however, because it provides much more easily interpreted measures of impact than alternative techniques. We also used the technically correct logit analysis framework to estimate impacts on binary outcomes and obtained estimates of the same sign and significance as

Impacts at participating institutions (entire main demonstration sample). The estimated demonstration impacts for outcomes measured at participating institutions are shown in Exhibit 2-2. As mentioned earlier, two participating institutions (Coppin State College and University of Maryland University College) did not provide data on any outcomes for this report and a third (Johns Hopkins University) provided complete data for the second follow-up year, but provided only enrollment and credit information from the School of Continuing Studies (the School to which brochure respondents were referred) in the baseline and first follow-up year. Thus, the impact estimates in this section can be strictly interpreted as the *impact of the treatment on educational outcomes at those participating institutions that provided data.*[5]

As can be seen in the third row of Exhibit 2-2, 3.3 percent of the control group members enrolled in at least one course for credit in the two years following the start of the demonstration. The treatment did not have a significant impact on the likelihood of enrollment, as evidenced by the very small and statistically insignificant impact estimates in the third column of the exhibit.

The next panel of the exhibit shows the average number of semester credits earned during the two-year follow-up period, about one-third credit per control group member.[6] Again, the treatment did not have a significant impact on the average number of semester credits earned in the two-year follow-period. A significant negative impact is observed for the second year of the follow-up period. It is the only one of 18 estimated impacts in this exhibit that is statistically significant, without a corroborating pattern either here or in the other data we analyzed, we attribute this to sampling error alone.

Estimated impacts on receipt and amount of all financial aid, and specifically the receipt and amount of FDSLs, are shown in the bottom four sections of Exhibit 2-2.

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those reported here.

[5] Since most of the participating institutions provided data, the difference between the treatment and control outcomes would have to be extremely large at those that did not provide data to noticeably affect the impact estimates presented here. MHEC data on enrollments at Coppin State College and University of Maryland University College in the Fall 1996 term, indicates that the treatment and control enrollment rates at these institutions are very similar. This suggests that impact estimates with the available data will accurately reflect the treatment impacts at all participating institutions.

[6] Note that this average includes sample members who earned no credits; for those who earned credits, the average was 9.8 credits over the 2-year follow-up period.

Exhibit 2-2
Demonstration Impacts, Participating Educational Institutions

Academic Year	Control Mean	Estimated Impact (Standard Error)	Impact as % of Control Mean
		Enrollment in a Course for Credit	
1996-97	2.2%	0.05 (0.05)	2.05
1997-98	2.3%	-0.10 (0.06)	-4.20
1996-98	3.3%	-0.02 (0.07)	-0.72
		Semester Credit Hours	
1996-97	0.16	-0.0007 (0.005)	-0.43
1997-98	0.17	-0.01* (0.006)	-6.43
1996-98	0.33	-0.01 (0.009)	-3.49
		Financial Aid, All Sources: Receipt	
1996-97	0.2%	0.02 (0.02)	7.15
1997-98	0.2%	0.02 (0.02)	9.20
1996-98	0.4%	0.02 (0.02)	5.44
		Financial Aid, All Sources: Amount[a]	
1996-97	$10.53	-0.90 (1.04)	-8.56
1997-98	$11.18	1.46 (1.53)	13.06
1996-98	$21.71	0.56 (2.16)	2.57
		Federal Direct Student Loans: Receipt	
1996-97	0.1%	-0.008 (0.01)	-5.78
1997-98	0.1%	0.006 (0.02)	4.92
1996-98	0.2%	-0.008 (0.02)	-4.16
		Federal Direct Student Loans: Amount[a]	
1996-97	$8.03	-1.34 (0.92)	-16.68
1997-98	$8.62	0.93 (1.33)	10.71
1996-98	$16.65	-0.42 (1.90)	-2.50

Source: Administrative records of participating educational institutions
Sample Definition: Entire main demonstration sample.
Sample Size: 208,400 (control, 103,732; treatment, 104,668)
Notes: [a]Control means are averages across all control group members, including those who received no aid. See Chapter 4 for details on average amounts for those who received aid.
*Estimated impact statistically significantly different from zero at the .10 level; ** at the .05 level; *** at the .01 level.
Data not available from Coppin State College and University of Maryland University College. Johns Hopkins University (JHU) only provided data from its School of Continuing Studies prior to the 1997-98 academic year. In addition, financial aid data prior to the 1997-98 academic year were not available from JHU.
Refer to Appendix B for estimation methodology.

About 0.4 percent of control group members received financial aid in the follow-up period.[7] The treatment had no significant effects on the financial aid outcomes in the demonstration sample.

The analysis just presented relies on data from participating education and training institutions only. Because they participated in the demonstration, these are the institutions that we would expect to be most likely to attract additional enrollments from the demonstration.

However, to the extent that the intervention has encouraged people to go back to school or attend a training program at a school or institution for which we do not have follow-up data, we may not be capturing the full impact of the public information campaign. We can address this limitation by analyzing two independent data sources for measuring educational outcomes: MHEC data for the entire demonstration sample on enrollments at all *public* post-secondary educational institutions in Maryland; and data for the subsample of follow-up survey respondents on educational outcomes at all training and education institutions. The results of these two analyses are discussed below.

Impacts at all Maryland public educational institutions (entire main demonstration sample). Estimated impacts for the entire demonstration sample on outcomes measured at all Maryland public post-secondary educational institutions are shown in Exhibit 2-3.

The outcomes analyzed here, enrollment and credits attempted in Fall 1996 and Fall 1997,[8] are based on data provided by the Maryland Higher Education Commission. These outcome data cover both participating public educational institutions (including those who did not provide data for this report) and non-participating public institutions. They do not include information on sample members at private colleges (e.g., JHU and Loyola) or private career training institutions (e.g., TESST Technological Institute, Medix, and Fleet).[9] MHEC collects data on enrollment for credit in the fall term of each year; thus, the enrollment and credit data are for Fall 1996 and Fall 1997. These outcome data cover both participating public educational institutions (including those who did not provide data for this report) and non-participating public institutions.

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[7] Note that the average amounts of financial aid received in the last three panels of Exhibit 2-2 include sample members who received no financial aid. See Chapter 4 for details on the amounts received by those who received aid.

[8] MHEC only collects financial aid information in aggregate form; hence, we cannot match it to our demonstration sample.

[9] MHEC does not receive data from most private career training institutions and receives data from other private institutions only in aggregate form; hence, we cannot match it to the demonstration sample.

Exhibit 2-3
Demonstration Impacts, All Maryland Public Educational Institutions

Semester	Control Mean	Estimated Impact (Standard Error)	Impact as % of Control Mean
		Enrollment in Course for Credit	
Fall 1996	3.3%	0.04 (0.07)	1.21
Fall 1997	2.9%	-0.02 (0.07)	-0.69
Fall 1996 & Fall 1997	6.2%	0.02 (0.1)	0.32
		Semester Credit Hours	
Fall 1996	0.18	0.003 (0.005)	1.67
Fall 1997	0.17	-0.00003 (0.005)	-0.02
Fall 1996 & Fall 1997	0.35	0.003 (0.008)	0.86

Source: Maryland Higher Education Commission administrative records
Sample Definition: Entire main demonstration sample
Sample Size: 208,400 (control, 103,728; treatment, 104,672)
Notes: *Estimated impact statistically significantly different from zero at the 0.10 level; ** at the 0.05 level; *** at the 0.01 level
Refer to Appendix B for estimation methodology

They do not include information on sample members at private colleges (e.g., JHU and Loyola) or private career training institutions (e.g., TESST Technological Institute, Medix, and Fleet).[10] MHEC collects data on enrollment for credit in the fall term of each year; thus, the enrollment and credit data are for Fall 1996 and Fall 1997.

As shown in Exhibit 2-3, the estimates of the treatment effect on enrollment and credits taken by the demonstration sample are positive, but insignificant, in Fall 1996 and over the entire follow-up period and negative, but insignificant, in Fall 1997. Because all the estimates are statistically insignificant, we conclude that the demonstration had no impact on enrollments or the number of credits taken at Maryland public schools.

Impacts at all training and educational institutions (survey sample). Estimated impacts for the survey sample on outcomes measured at all training and educational institutions are shown in Exhibit 2-4. The survey sample includes 3,601 respondents (see Appendix A for a detailed description of the survey sample). Though weighted to reflect the entire demonstration sample, the smaller sample size (less than 2 percent of the entire demonstration sample) means that the estimates will be much less precise than estimates using administrative data on the entire demonstration sample. This will be reflected in larger standard errors of the estimates. The advantage of the survey sample is that respondents reported all education and training activities that they participated in for two or more weeks in the follow-up period, not just at participating schools or Maryland public post-secondary institutions. Respondents also reported whether they were considering going to school in the future and the presence of informational barriers in investing in additional education or training—both of which could be considered intermediate outcomes that might be affected by the demonstration. In addition, the survey data contain baseline measures of educational attainment, race, and family composition that can be used as covariates in the regression to improve the precision of the estimates.

As can be seen in the first row of Exhibit 2-4, 15 percent of the control group enrolled in an education or training program lasting two or more weeks during the follow-up period (July 1996 to June 1998). This estimated enrollment rate for control group members is considerably higher than the estimated enrollment rates at participating schools (3.3 percent) or Maryland public post-secondary institutions (6.2 percent) because it is a much broader

[10] MHEC does not receive data from most private career training institutions and receives data from other private institutions only in aggregate form; hence, we cannot match it to the demonstration sample.

Exhibit 2-4
Demonstration Impacts for Follow-up Survey Sample, All Education and Training Institutions (Entire Follow-Up Period)

Outcome	Control Mean	Estimated Impact (Standard Error)	Impact as % of Control Mean
Enrollments in education or training course lasting 2 or more weeks	15.4%	1.96 (1.5)	12.79
Enrollments or expected future enrollments	44.9%	-2.85 (2.1)	-6.34
Semester-equivalent credit hours	2.39	0.15 (0.38)	6.48
Financial aid receipt	8.3%	1.02 (1.2)	12.30
Financial aid amount	$268.67	69.36 (79.97)	35.87
"Finding out what schools offer the programs you want" is **not** a big problem	98.0%	0.46 (0.6)	0.47

Source: Lifelong Learning Demonstration Follow-Up Survey
Sample Definition: Follow-Up survey sample
Sample Size: 3,601 (control, 1,330; treatment, 2,271)
Notes: *Estimated impact statistically significantly different from zero at the .10 level; ** at the .05 level; *** at the .01 level. Refer to Appendix B for estimation methodology.

measure of participation; it includes education and training activities that take place at any type of institution in or outside of Maryland. In Chapter 3, we compare this rate to estimates from prior research on adult participation in education and training activities. As evidenced by the very small and statistically insignificant impact estimates shown in the third column of the exhibit, the treatment did not have a significant positive impact on the likelihood of enrollment.

The next several rows of Exhibit 2-4 contain estimates of the demonstration impact on enrollments or expected future enrollments, credits earned, receipt and amount of financial aid. None of these estimates are statistically significant. The bottom row shows the estimated impact on an informational barrier that the public information campaign could help adult workers overcome: *finding out what schools offer the programs you want.*[11] Although the point estimate is positive, it is very small relative to the standard error and is not statistically significant.

These results lead to the conclusion that the demonstration had no measurable impact on the educational outcomes that could be measured with the survey data.

Impacts on subgroups at participating institutions. Although we did not find positive impacts for the entire treatment group, analysis of impacts on the entire sample may have masked positive impacts on subgroups. To explore this possibility, we estimated impacts on subgroups defined by gender, predemonstration UI earnings, gender and UI earnings, and age using participating school data, and on subgroups defined by prior education, race, presence of children in the household, and prior loan burden using survey data. For the estimates using participating school data, we analyzed the same enrollment and financial aid outcomes (measured over the entire follow-up period) and controlled for the same covariates that were used in the analysis of the entire sample. For the estimates from survey data, we estimated impacts on enrollment, controlling for the same covariates that were used in the analysis of the entire sample. The results are reported in Appendix C and briefly summarized here.

[11] Sample members who did not apply to or attend education or training programs during the follow-up period or say that they intended to attend such a program in the future were included among those for whom this barrier was *not* a big problem. This accounts for the small percentage of control group members who cited this as a big problem.

We estimated impact coefficients for six outcomes and 14 subgroups using participating school data and one outcome and eleven subgroups using survey data—a total of 95 estimates. Five estimates were statistically significant (three positive impacts, two negative impacts). We would expect to find up to nine estimates out of 95 to be statistically significant at the 10 percent level due to sampling error alone; thus, the number of statistically significant impacts we found is well within the range we would expect from sampling error. Although some of these estimates may reflect real impacts, the evidence is not strong enough to conclude that the treatment had an impact on any of the outcomes for the subgroups analyzed. See Appendix C for the complete listing of results by subgroup.

Summary of impact estimates. In this section we presented estimated impacts on a variety of educational outcomes, separately measured from two independent sources of administrative data and from a follow-up survey of a subsample of the demonstration sample. Most of the analysis was conducted for the entire sample and on various subgroups that might have been differentially impacted by the public information campaign. Based on all of these estimates, we conclude that the public information campaign of the Lifelong Learning Demonstration did not have a significant impact on educational outcomes during the two-year follow-up period. It appears that the treatment—a brochure providing comprehensive information on education and training opportunities and making it easier to acquire more career, school, and financial aid information—was not a strong enough intervention, by itself, to change workers' behavior in such a substantial manner. That is, going back to school can mean a radical change in a person's life and it would take a stronger intervention to appreciably increase the number of people enrolling in education and training institutions.

Alternative interventions. Although the demonstration did not test alternative interventions, consideration of the barriers to further education reported by sample members suggests some possible ways to strengthen the assistance provided to workers interested in upgrading their skills. For example, an intervention focusing on reducing the informational barriers to obtaining additional education and training—as the Lifelong Learning Demonstration did—might offer the opportunity of free or inexpensive career and academic counseling sessions. To be effective, these sessions would likely have to conducted in small groups, or even one-on-one, by someone knowledgeable about the job market and educational opportunities in the local area. One possibility is to provide counseling over the

telephone. Convenience is a major factor for working adults, so the sessions would need to be held at accessible locations and at times that are convenient for workers.

It seems likely that active employer involvement in such a program would substantially increase its effectiveness in motivating workers to undertake additional education and training. Workers' employers have detailed knowledge of their existing skills and the skills that would increase their productivity on the job. Moreover, employer involvement might help to avoid or resolve the conflicts between work and education that working students often face.

In addition to providing information, an intervention might provide financial assistance to overcome the time and cost barriers that studies (this study and other research) consistently find to be major barriers for adults. To maximize its cost-effectiveness, such assistance might be designed to leverage employers' funds. For example, the government might match tuition reimbursement provided by employers to workers who enroll in education or training programs. A program aimed at alleviating the lack of time barrier might offer partial reimbursement (e.g., a tax credit) to employers who offer paid time off for education and training activities.

Again, these suggestions are entirely speculative, based on the kinds of barriers to further education cited by sample members. They would need to be tested rigorously before being instituted on a large scale.

Chapter 3

The Decision to Participate in Education and Training Programs

This chapter examines the factors that affect the decision of adult workers to participate in education and training activities. The first section summarizes findings from prior research on the participation rate of adults and places our estimated participation rate of adult workers in the Greater Baltimore area within this literature. The second section describes a model of the school decision-making process to provide context for the examination of factors that affect the decision to participate in educational activities. The next two sections examine the reasons adults participate and their perceptions of the expected benefits of participation and the barriers that they may encounter in deciding to obtain additional education. In the final section, we use a multivariate model to analyze factors that may be correlated with educational participation to determine which factors are significant even after controlling for other relevant characteristics.

Participation Rates in Education and Training Programs

The literature on adult participation in learning activities contains a wide variety of estimates of participation rates, depending on how broad or narrow the definition of learning activity, the population of adults of interest, and the extent that the methodology probes respondents to recall different types of learning activities. In a summary of the literature, Cross (1981) concludes that with the broadest definition of learning activity (informal and formal, on and off the job, any duration) and extensive probes, almost every adult can be considered a participant; with a restrictive definition requiring registration for credits or a formal certificate, less than 10 percent are considered participants; and between those extremes, estimates of receipt of instruction or participation in formal (but not necessarily for credit) learning activities range between 12 and 30 percent. More recent adult participation estimates (Collins *et al.*, 1997) range from 24 percent based on the 1992 Current Population

Survey to 44 percent based on the 1995 National Household Education Survey (NHES).[1] Both of these surveys use a broad definition of learning activities, probe for several types of learning activities, and are based on the population of adults age 16 or over who are not enrolled in elementary or secondary school and not on active duty in the armed forces.

The Lifelong Learning Demonstration Follow-Up Survey asked respondents whether they had attended any education or formal training programs that lasted more than two weeks since July 1, 1996 (almost 2 years prior to the survey). Respondents were instructed to exclude training provided by their employer at their place of work. From these responses, we estimate that one sixth, or 16.5 percent, of mature incumbent workers in the Baltimore area participated in a formal education or training program between July 1996 and June 1998. This participation rate is in the lower end of the range of adult participation rates in the literature, but this is consistent with differences between this study and the other studies cited. This study uses a fairly restrictive definition of a learning activity (not including training by employer or informal training and requiring that the training last two or more weeks); the target population is older (age 27 or older at the time of the survey) than in the other studies; and, in order to be included in the target population, sample members had to have a substantial commitment to the work force in the two years prior to the start of the demonstration. All these reasons lead to a lower participation rate. Finally, in this study, the target population is Baltimore area workers, whereas the other surveys cited had a target population of all adults in the U.S.

Exhibit 3-1 paints a picture of the students in our population of mature incumbent workers. The picture makes clear that these are not traditional students continuing their education after high school. As can be seen in the top panel of the exhibit, a majority of these students are older than age 36 (56 percent), are or have been married (71 percent), have children living with them (52 percent), and are well educated (47 percent have at least a bachelor's degree). In the bottom panel of the exhibit, selected characteristics of the schooling experience are shown.

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1 Collins *et al.* (1997) find that the CPS surveys consistently estimate lower participation rates than the NHES surveys. The paper contains an extensive analysis of the differences, concluding that further methodological research would be needed to find a definitive explanation, but citing explanations of the difference as a higher rate of undercoverage and non-response in the NHES survey, proxy reporting on the CPS, and contextual differences such as the supplemental status of the CPS participation survey, survey sponsorship, and interviewer training.

Exhibit 3-1
Selected Characteristics of Students and Schooling Experiences

Characteristics	Percent of Students
Characteristics of Students, July 1996	
Age 36 or older	55.6%
Ever married	70.7
Children living in household	52.1
B.A. degree or higher	46.7
Characteristics of Schooling Experiences in Follow-up Period (July 1996 to June 1998)	
Type of institution attended:	
Graduate school	17.4%
Four-year undergraduate	25.4
Two-year undergraduate	38.6
Private career or training institution	18.8
Community-based organization	7.0
Earned 6 or fewer credits	56.0%
Classes in evening	75.9
Not seeking degree or certificate	31.6

Source: Lifelong Learning Demonstration Follow-Up Survey.
Sample Definition: Survey sample respondents who attended educational training institution in follow-up period (7/1/96-6/1/98).
Sample Size: 1,086 student
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.
Sum of percents by type of institution is greater than 100 percent because some students attended more than one type of institution during follow-up period.

The typical student participated part-time (56 percent earned fewer than the equivalent of 6 semester credits in the follow-up period), took classes in the evening (76 percent took evening classes), and attended a community college (39 percent were at two-year schools). This picture of students and the characteristics of their participation form the backdrop for the rest of our analysis.

A Model of the Decision-Making Process

In our review of the literature, we found few authors who attempted to present a comprehensive model of the decision-making process of adults considering returning to school. Studies by economists tend to focus on education and training as an investment in human capital, emphasizing costs (both out-of-pocket and opportunity costs), economic returns, and tastes and preferences. In the non-economic literature, the most complete model of the decision-making process is the chain-of-response (COR) model developed in Cross (1981).

In this section, we describe Cross's model of the factors that influence adults' decisions on whether to invest in additional education and training. We interpret the COR model within an economic decision-making framework, then use this framework as a guide in the analysis of the decisions of adult workers to participate in an education or training program.

The COR model describes the decision to participate in a learning activity as the result of a chain of responses, based on the individual's attitudes and expectations of the benefits as well as external barriers and opportunities. The first link in the chain is personality characteristics and attitudes about education. Personality characteristics that affect the decision to participate include the degree to which a person fears failing in an educational environment (the converse is confidence in their abilities) and motivation for achievement. People who weigh failure more heavily are, other things equal, less likely to voluntarily participate in a new learning activity where they may fail. Since educational activities are often a competitive environment where one is formally ranked or informally compared with others, more achievement-motivated people are more likely to participate in additional education. Attitudes toward education, which are directly based on past experiences and indirectly on friends and colleagues, also influence the likelihood of participating. In an

economic decision-making framework, this link in the chain can be thought of as "tastes and preferences for education." That is, an individual's personality characteristics and attitudes toward education determine how positive they feel about participation in an education or training program and thus how large the expected net benefit of the activity must be to induce them to participate. Someone with a strong taste for education may participate even if the expected benefits are small, whereas someone with a strong distaste for educational activities will need expected benefits to be extremely large to participate.

The second link in the COR model is the goals that individuals may achieve through additional education and training and the importance of these goals. An individual's evaluation of the consequences of participation is based on the subjective probability of succeeding in the activity, the probability of achieving desired goals if the educational activity is successfully completed, and the importance the individual places on these goals.[2] In an economic framework, this link in the model can be thought of as the calculation of the expected benefits of participation. The expected benefit of an educational activity varies across people because they have different probabilities of successfully completing the activity; the consequences of completing the activity will depend on their individual circumstances, such as their job and the local labor market; and they may place different values on the outcomes, such as the value or the prestige of a promotion. In the COR model, the first two links (categorized in the economic framework as tastes and preferences for education and the expected benefits) determine the person's motivation to participate in education and training activities.

Life transitions can increase the motivation to obtain additional education and training.[3] Cross defines life transitions as "periods of change calling for adjustment to new phases of the life cycle." Triggering events for life transitions can be predictable, such as when the youngest child goes off to college, but can also be sudden and unpredictable, such as job layoffs and some divorces. These triggering events lead to transitions from one status to another (e.g., from one career to another), requiring preparation for a new stage of life. This may increase the benefit of learning new skills. For example, a stay-at-home parent may

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2 In a more complex model, the individual would have to calculate the expected benefits of all possible outcomes, e.g., partial completion or complete failure, and the probability of each outcome occurring.

3 See Aslanian and Brickell (1980) for a more complete description of the Transitions and Triggers Model of adult learning.

need to refresh their skills or acquire new skills to succeed in the labor market when the youngest child goes off to school; a laid-off worker in a declining industry may need to acquire additional training or education to change careers.

The third link in the COR model is the barriers and opportunities to participation. Barriers include tuition and course-related expenses, informational costs such as finding out about programs of interest, the opportunity cost of the time needed to participate, and scheduling around work and family responsibilities. If the person's motivation is strong enough to overcome the barriers they encounter, then they will participate. Obviously, the fewer the barriers the less motivation that is needed to participate. Likewise, the more motivated a person the more barriers they will overcome to participate. In an economic framework, barriers can be thought of as the costs of participation.

In summary, tastes and preferences for education and the expected benefits of participation determine the motivation to participate and the level of barriers or costs a person is willing to overcome to participate in education and training activities.

Perceptions of the Benefits of Education and Training Activities

In this section, we examine the reasons adults invest in education and training programs. First, we summarize the existing literature on reasons for participating, then we report the results of the demonstration follow-up survey on students' and non-students' perceptions of the benefits of additional education and training.

Prior research on reasons adults participate. Our review of the literature indicated that adults most frequently cited job security and career advancement in their current occupation, career changes, remaining up-to-date with technological changes, and to a lesser extent personal growth and learning for the sake of learning as reasons they invested in further education and training.

For example, in a study of adult students in Northwestern Ohio, Hu (1985) asked current students and prospective students to identify the most important reasons from a list of eight reasons for attending or considering returning to school. Among the current students, 44 percent cited career advancement, 18 percent career change, 11 percent the need for future employment opportunity because they were currently unemployed, and 11 percent education

for the sake of education as the most important reason for attending school. Among the prospective students, 26 percent cited remaining up-to-date with new technologies and thinking, 22 percent chose credentials for career advancement and 18 percent named education for the sake of education as the most important reason for taking courses.

Norton Grubb (1996) interviewed 41 students from four community college districts in California. A majority of the adult students in his sample were attending community college because they were displeased with their labor force experience, which was typically characterized by low-paying, low-status, and dead-end jobs. These students were enrolling in community colleges to develop skills for alternate career paths, ones that would lead to higher wages, greater stability, and better advancement prospects. Some of the students were victims of displacement while others were trying to develop employable skills after extended absences from the labor market.

In two focus groups of Baltimore-area residents who responded to the Lifelong Learning Demonstration brochure, Thompson (1997) found that the most commonly voiced reason for pursuing additional education or training was job security. Several participants cited the need to be marketable. Some participants wanted to stay abreast of new technologies or techniques so as not to be replaced by more highly skilled workers. Other participants stated that they were considering additional education as a way to increase credentials so as to advance their position in their current fields. Some participants also mentioned personal reasons such as self-improvement.

Aron and Nightengale (1995) conducted focus groups with Baltimore-area students and found that the main reasons for pursuing additional education and training concerned their current jobs and career paths.[4] Participants wanted to have better job security, advance within their current place of employment, become more competitive in the job market, and stay up-to-date with new technologies such as computers. Other reasons mentioned by the participants included setting a good example for family members, fulfilling a lifelong dream, personal growth, and earning the equivalent credential for education/training completed in another country.

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4 The Aron and Nightengale (1995) focus groups were conducted as part of an Urban Institute study funded by the U.S. Department of Labor in preparation for the Lifelong Learning Demonstration.

In an earlier review of reasons behind adult education, Cross (1981) also concluded that most adults gave practical, pragmatic reasons for learning.
They cited objectives as broad as the desire for a better job or as narrowly defined as the need to learn a specific new skill, but only a small proportion of adults learned for learning's sake.

Survey respondents' perceptions of benefits. In the Lifelong Learning Demonstration Follow-up Survey, respondents were asked to report their perceptions of the importance *to them* of each item on a list of potential benefits of obtaining additional education or training. We tabulated the responses separately by whether or not the person recently participated or was considering participating in an educational activity. The percent who reported each item was "very important" is shown in Exhibit 3-2,[5] ordered from items most frequently mentioned as very important to those least frequently mentioned. The benefit most frequently cited as very important was personal enrichment (three-fourths of recent or future students, two-fifths of non-students), followed by "Improve chances of finding another job if I lose or quit my current job" and "Increase the amount of money I can earn." The benefit least frequently cited as very important (25 percent of students and potential students, 14 percent of non-students) was "Earn more respect at place of employment."

People who recently had enrolled or who were considering enrollment in the future were significantly more likely to rate each item as more important than respondents who had not recently participated and were not considering participation in the future.[6] These results indicate that people who perceive they will most likely benefit from additional education are the ones who are most motivated to obtain it, and do so. However, a significant proportion (usually more than one-third) of people who did not obtain and did not plan to obtain additional education still agreed strongly that further education would convey the listed benefit. For these people, the barriers to participation or their distaste for educational activities must outweigh the perceived benefits.

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5 Response categories for these questions were somewhat different for people who did not participate or apply for an educational activity in the follow-up period and were not considering enrollment in the future. They were asked *how strongly they agreed* with each statement about the potential benefit to them of obtaining additional education and training. Exhibit 3-1 shows the percent of these respondents who strongly agreed with the statement.

6 In this report, estimates are deemed statistically significant if they are significant at the .10 level. The exhibits show whether the estimates are significant at the .10, .05, or .01 level.

Exhibit 3-2
Factors Cited as "Very Important" Reason for Pursuing Additional Education/Training, by Schooling Status

Reason	Enrolled, Applied, or Considering Additional Education/Training	Not Enrolled, Applied, or Considering Additional Education/Training
Personal enrichment***	77.3%	39.3%
Improve chances of finding another job if I lose or quit current job‡***	68.1	39.5
Increase amount of money I can earn***	65.2	30.5
Improve chances of finding a job‡‡***	62.9	38.5
Help do my job better‡***	58.2	28.4
Help make a career change that I would like to make***	55.7	31.8
Be a good example for children or other relatives***	52.7	37.6
Improve chances of getting a promotion‡***	51.4	22.6
Reduce chances of being laid off in the future***	42.7	15.4
Earn more respect at place of employment‡***	25.1	13.9

Source: Lifelong Learning Demonstration Follow-Up Survey.

Survey Question: For each possible reason I read, please tell me whether it is: a Very Important, a Somewhat Important, or Not an Important reason you (recently pursued/recently applied for / are considering pursuing) additional education or training. *For respondents who did not enroll in, apply for, and were not considering additional education/training, the question was:* For each statement I read, please tell me whether you: Agree Strongly, Agree Somewhat, Neither Agree nor Disagree, Disagree Somewhat, or Disagree Strongly. Getting additional education or formal training would... Respondents who reported they strongly agreed with the statement are included in the exhibit percentages.

Sample Definition: Survey sample.

Sample Size: 3,601 survey respondents (enrolled, applied, or considering additional education/training: 2,092; not enrolled, not applied, and not considering additional education/training: 1,509).

Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.

*"Enrolled"/"not enrolled" difference statistically significant at the .10 level (chi-square test).

** at the .05 level, *** at the .01 level.

‡ Universe for this question is respondents employed at time of survey (3,287).

‡‡ Universe for this question is respondents not employed at time of survey (314).

We also compared the perceptions of respondents who were employed at the time of the survey to those who were not employed at that time (not shown in the exhibit). There were few differences between respondents who were employed and those who were not in the importance they attached to these reasons to obtain additional education or training.[7]

Barriers to Participation

After a review of the prior research on barriers adults encounter in participation in education and training activities, we examine respondents' perceptions of barriers, including the requirements for receipt of financial aid.

Prior research on barriers. The literature on barriers to investment in further education and training by non-traditional students ranges from empirical studies based on nationwide surveys, to reports based on focus group discussions, to synopses of results from various sources. While some studies focus on only one or two important barriers, other studies discuss a more diverse set of barriers. Here, we summarize some of the literature, following Wheaton and Robinson's (1983) division of barriers into external and internal categories.

External barriers are barriers that arise from outside the individual. Institutional barriers such as inflexibility of education programs and inadequacy of financial aid programs, as well as personal barriers such as lack of time, are categorized as external barriers. Internal barriers are barriers that are psychological or emotional in nature—e.g., fear, guilt, and lack of confidence. In the chain-of-response model framework, internal barriers are considered personality characteristics that affect the motivation to participate in educational activities.

Cost and lack of time are the two most frequently cited external barriers to additional investment in education and training by adults. Problems posed by lack of flexibility in scheduling and educational services, inadequacy of financial aid opportunities for adult students, distance between home and college, and lack of child care and other services adult students desire are also cited as other important barriers for non-traditional students.

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7 There were no statistically significant differences between employed and not employed in the students and potential student group; in the non-student group, the employed group was significantly less likely than the not employed group to strongly agree that "Increasing the amount of money I can earn" or "Reducing the chances of being laid off in the future" would be benefits of additional education or training.

In a nationwide study, Dillman *et al.* (1995) found that 56 percent of adults potentially interested in acquiring additional education or training cited cost as a barrier. In addition, 54 percent of such adults reported lack of time as a barrier and more than 40 percent reported that the courses they wanted were not available at convenient times. Their study indicated that cost was a more serious concern for younger adults and those with a relatively lower level of education, whereas time was a more serious impediment for older adults and those with a relatively higher level of education. Dillman *et al.* also found that 25 percent of adults considered distance between their home and educational institutions to be a barrier.

Hu (1985) categorized adults between the ages of 15 and 64 who indicated that they were "not likely" or "not likely at all" to enroll in an academic program within the next 12 months as non-prospective adult students. Hu found that approximately 36 percent of non-prospective adult students reported lack of time as the most important impediment to returning to school. Another 15 percent of non-prospective students cited high tuition as the most important reason for not pursuing further education and training.

In focus groups with Baltimore-area residents, Thompson (1997) found that cost was reported to be a major barrier. The general perception was that college courses were too expensive. Competing and/or unpredictable claims on the participants' resources such as costs associated with raising and educating children, and household and automotive repairs were described as barriers to financing their own education. Some participants were concerned about their eligibility for financial aid because their income levels were higher than the qualifying levels, even though they could not afford further training and education without aid. Other participants cited concerns about incurring additional debt, or difficulty in finding information on scholarship programs and meeting the eligibility requirements for scholarships. Finding time to take classes and complete course assignments was reported as another major barrier. A majority of the participants were looking for programs that could be completed in a relatively short period of time, even if undertaken part-time while working. The need for flexibility of education programs was another major issue raised by the participants. Participants were also concerned about the need for access to professors and counseling beyond the normal daytime hours.

Aron and Nightengale (1995) also found in their focus group study that lack of time and/or money were the most frequently mentioned barriers the participants faced in pursuing

additional education and training. Both enrolled and unenrolled participants in the focus group stated that finding time was a very big challenge because of work and family commitments. Participants with seasonal jobs, construction jobs, and jobs that require travel without advance warning found enrolling in education and training program especially difficult. Other barriers mentioned were poor quality instructors, child care problems, and limited public transportation. The authors also mentioned that several participants, more women than men, faced resistance from their friends and family, who questioned the participants' motives and age for being in school, and/or resented the financial drain and the fact that they had less time to spend with the participants.

Another focus group study by Bers and Smith (1992) indicated that many students were making concerted efforts to balance career, family, and school. Many were also disturbed about having to rearrange work and family schedules to accommodate last-minute changes in class schedules, such as canceling of courses in the last days prior to the start of a semester due to low enrollment.

In a conference presentation, Zamanou (1993) listed lack of time, high tuition and living too far from college as important reasons for adult students not returning to school. The author indicated a virtual absence of financial support for part-time students and other financial aid practices as barriers to success of adult students. She mentioned time limits on course or degree requirements and schedules as hindrances to returning part-time students. She also noted that the offices of counseling, career planning and placement, advisement, financial aid, book stores, and some libraries are often open at hours scheduled for staff convenience rather than for non-traditional students' convenience.

A recent report by the Commission for a Nation of Lifelong Learners (1997) concluded from four public forums and existing literature that many higher education practices were not well adapted to the needs of employers and adult learners. They mentioned lack of flexibility in calendar and scheduling, academic content, modes of instruction and availability of learning services, among other things, as barriers to participation.

In a paper that focuses on adult females who return to school, Wheaton and Robinson (1983) noted that financial aid policies such as lack of financial aid for part-time students and inclusion of spouse's income in the determination of financial need regardless of whether the spouse was a financial contributor or not were all barriers encountered by returning female

students.[8] Another barrier women faced was inconvenient course scheduling. The authors also mentioned that returning adult females encountered impediments such as lack of child care facilities, lack of information about educational opportunities and admissions procedures, the difficulty of standardized admissions testing in light of rusty test-taking and study skills, and the need for additional counseling and assistance in developing study skills.

In addition to the external barriers mentioned above, a variety of internal barriers deter adult workers from obtaining further education and training. Aron and Nightengale (1995) noted that a number of focus group participants were concerned about their ability to manage academic course work and competition with the younger classmates. They found, however, that these fears and anxieties were overcome by the time students completed the first term or semester. Some participants, especially women, reported feeling guilty about spending less time with their children and devoting less attention to housework and other responsibilities.

Bauer and Mott (1990) conducted in-depth interviews with eight men and eight women who were reentering students between the ages of 25 and 35 and found differences between men and women with regard to internal barriers. They found that women experienced guilt and frustration about caring for children while supporting themselves financially and attending school, whereas men experienced frustration and lack of self-confidence about insufficient time and money. Both males and females were found to fear failure.

Wheaton and Robinson (1983) found that the internal barriers faced by returning adult females were guilt and anxiety as a result of the belief that re-enrollment in school is a violation of the traditional gender-role norms, lack of self-confidence, lack of decision-making skills, low self-esteem, and excessive dependency. Bers and Smith (1992) also found that many women doubted their ability to compete and succeed and feared return to college.

In summary, the external barriers to further education and training of non-traditional students cited in prior studies include:

- lack of time to take classes and do classwork;
- high cost of education;
- inadequate financial aid for adults;
- inconvenient scheduling of class times;

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8 The particular group of students that Wheaton and Robinson (1983) discussed is the group of returning females who discontinued their schooling in order to care for their families and then returned to complete their degrees or to develop vocational skills.

- inflexible calendar schedules for courses and programs;
- limited access to professors, counseling and other educational services;
- distance between home and college;
- lack of public transportation to schools and training institutions;
- lack of child care services;
- family and friend discouragement and resentment of time commitment (especially for women);
- prior debt from school loans;
- lack of information about educational opportunities and admissions process;
- last minute changes in course schedules; and
- rusty test-taking skills.

The internal barriers mentioned in the literature include:

- fear of competition with younger students more comfortable with tests and schoolwork;
- guilt about perceived financial drain, violation of gender-role norm, and less time spent with family;
- low self esteem/lack of self confidence; and
- fear of academic failure.

Survey respondents' perceptions of barriers. Follow-up survey respondents were asked whether each of eleven potential barriers was a "big problem," "some problem," or "no problem" in their decision to participate in an education or training program (or to consider participating in the future). Their responses are shown in Exhibit 3-3, tabulated separatelyby whether the respondent was a student in the follow-up period; the respondent applied, but did not attend in the follow-up period; or the respondent reported they were considering

Exhibit 3-3
Potential Barriers Reported as a "Big Problem" in Pursuing Additional Education/Training

Potential Barrier	Students	Applicants	Potential Students
Finding the time to do homework or out-of-class work	27.4%	27.4%	30.4%
Balancing work responsibilities with school	24.4	34.5	28.1
Paying for school or training	21.6	42.0**	34.6***
Committing to the time it takes to complete the program you want	17.0	31.3	18.2
Meeting child care or other family responsibilities while in school	16.0	10.8	18.6
Finding the course you want at a time of day you can take it	12.5	31.9**	26.5***
Finding the course you want on days of the week you can take it	12.1	27.4**	24.9***
Finding out information about the program's track record for its graduates, such as the types of jobs and starting salaries	7.6	5.1*	9.2
Deciding what program or courses to take	4.2	0.0	6.0
Finding out what schools offer the program you want	2.5	0.2***	5.5**
Meeting the education or training requirements to get into the program or courses you want	1.9	0.6	6.6***

Source: Lifelong Learning Demonstration Follow-Up Survey.
Survey Question: Please tell me if the following issues were a big problem, a small problem, or not a problem for you in your most recent decision to go to school or get additional formal training. Question worded slightly differently for respondents who were not enrolled during follow-up period.
Sample Definition: Survey sample respondents who applied to or attended educational training institution in follow-up period (7/1/96-6/1/98) or were considering attending one in the future. Applicants had applied for, but not attended school during follow-up period.
Sample Size: 2,081 (1,086 students; 49 applicants; and 946 potential students)
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.
* Statistically significantly different from student group at .10 level (chi-square test); ** at .05 level; *** at .01 level.

participating in an education or formal training program in the future (i.e., potential students).[9]

The three barriers most frequently cited as a "big problem" by students were "finding the time to do homework or out-of-class work" (27 percent), "balancing work responsibilities with school" (24 percent); and "paying for school or training" (22 percent). These were also the most frequently cited problems for potential students, and while applicants mentioned these three problems frequently, 32 percent also cited "finding a course you want at a time of day you can take it." These are consistent with other findings in the literature, which consistently find lack of time and lack of money as the biggest barriers adults encounter.

Although the barriers most frequently mentioned are fairly similar across the three groups, there are several statistically significant differences in the percent of each group reporting a potential barrier as a big problem. Potential students and applicants were about twice as likely to cite "paying for school or training," "finding the course you want at a time of day you can take it," and "finding the course you want on days of the week you can take it" as big problems. Whether from actual experience of trying to obtain additional education (as most applicants and some potential students are likely to have) or from a distance, applicants and students clearly see inconvenient scheduling as a major barrier.

Respondents were also asked whether they were aware of, or had encountered any financial aid eligibility requirements that made it or would make it difficult to participate in additional education or training programs. As shown in Exhibit 3-4, about 10 percent of students and potential students and 17 percent of applicants reported they were aware of problematic financial aid barriers. Of those who reported problematic requirements in an open-ended question, one third of applicants and over half of the other respondents reported that their family income was too high to qualify even though they felt they would benefit from financial aid. The only other substantial eligibility problems articulated by more than a handful of respondents were the need to enroll at least half-time and a difficult or cumbersome application process.

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9 Respondents who did not attend or apply for education or training activities during the follow-up period and were not considering participation in the future were not asked these questions about barriers and thus were not included in the sample for these calculations. Questions on barriers would not provide meaningful information from respondents who were not even considering enrolling in the future.

Exhibit 3-4
Perceptions of Financial Aid Barriers

	Students	Applicants	Potential Students
Percent who were aware of, or had personally encountered, problematic financial aid requirements	9.8%	17.3%	10.8%
Problematic Requirement (of those who reported problem):			
Income too high	54.5%	37.6%	61.1%
Need to enroll in school at least half-time	8.2	0.0	2.2
Difficult or cumbersome application process	8.1	0.0	2.6

Source: Lifelong Learning Demonstration Follow-Up Survey.
Survey Question: Please tell me what financial aid eligibility criteria (would make/made) it difficult for you to participate in additional education or training programs?
Sample Definition: Survey sample respondents who applied to or attended educational training institution in follow-up period (7/1/96-6/1/98) or were considering attending one in the future. Applicants had applied for, but not attended school during follow-up period.
Sample Size: 2,081 (1,086 students; 49 applicants; and 946 potential students).
Notes: Survey question on problematic requirements was open-ended. Problematic requirements other than those listed above were only given by a few respondents.
All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.
* Statistically significantly different from student group at .10 level (chi-square test); ** at .05 level; *** at .01 level.

Empirical Model of School Participation

To identify factors correlated with a mature incumbent worker's decision to participate in formal education and training programs when other variables of interest were controlled for, we conducted logistic regression analysis on the decision to participate during the follow-up period and/or plans to participate in the future. The final part of this section contains a separate analysis for treatment group members who requested information on participating schools (i.e., brochure respondents) as part of the Lifelong Learning Demonstration. We included all available survey data on personal characteristics, barriers, expected benefits, and life-transition triggers that the education literature suggests are relevant as covariates in the model.[10]

Factors associated with participation in educational activities. Exhibit 3-5 contains the logistic regression results for participation in formal education or training during the follow-up period for all survey respondents and for males and females separately. The logistic regression coefficients are not directly interpretable in terms of percentage point changes in the probability of participating,[11] however a positive coefficient indicates a higher propensity to participate and a negative coefficient indicates a lower propensity to participate in an education or training program, other factors held constant. The coefficient estimates for personal characteristics are shown first.

The top panel confirms findings in the literature that younger adults (under age 40) are more likely than older adults to participate in education or formal training activities; however, the differences across age groups are generally not statistically significant for females. The most compelling reason that younger adults are more likely than older adults to obtain additional education and training is that younger adults have a longer work career ahead of them to receive the benefits of additional training. That is, the expected work-related benefits are higher for younger adults.

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10 The STATA™ software program, which uses a pseudo-maximum likelihood procedure to account for disproportionate stratified sampling design, was used for these (and all other) estimates.

11 In a logistic regression the percentage change due to change in an explanatory variable is the partial derivative of change in the independent variable with respect to the explanatory variable, however this derivative is not constant (and not equal to the coefficient) across different values of the explanatory variables. The change in probability needs to be calculated at different levels of the explanatory variables to get an idea of the range of variation in the resulting changes in the probability. See Maddala (1983) for a description of the logit model and the interpretation of the coefficient estimates.

Exhibit 3-5
Factors Associated With the Decision to Obtain Additional Education or Training During the Follow-up Period: July 1996 to June 1998
(logistic regression coefficients; standard errors in parentheses)

Covariates	All Survey Respondents	Females	Males
Age in July 1996 (30-39 omitted)			
29 or less	0.57 (0.21)***	0.31 (0.30)	0.95 (0.30)***
40-49	-0.35 (0.16)**	-0.42 (0.21)**	-0.16 (0.27)
50-59	-0.55 (0.22)**	-0.37 (0.29)	-0.73 (0.35)**
60+	-1.09 (0.41)***	-0.78 (0.52)	-1.79 (0.86)**
Female	0.45 (0.14)***	n/a	n/a
Race (White omitted)			
Black	0.09 (0.18)	0.18 (0.23)	-0.22 (0.29)
Hispanic	-0.19 (0.51)	-0.53 (0.84)	0.11 (0.59)
Other	0.76 (0.29)***	0.86 (0.42)**	0.77 (0.43)*
Marital Status in July 1996 (Single omitted)			
Married	-0.51 (0.18)***	-0.68 (0.25)***	-0.12 (0.29)
Divorced/Widowed/Separated	-0.25 (0.22)	-0.36 (0.28)	-0.19 (0.42)
Educational Attainment in July 1996 [High school (HS) degree omitted]			
Less than HS	0.22 (0.40)	-0.35 (0.75)	0.58 (0.49)
Post HS certificate or some college	0.48 (.018)***	0.47 (0.24)**	0.58 (0.30)*
Associate's degree	0.19 (0.28)	0.22 (0.33)	0.07 (0.55)
Bachelor's degree	0.49 (0.19)***	0.39 (0.25)	0.59 (0.30)**
Professional certificate	0.25 (0.37)	0.38 (0.52)	-0.03 (0.51)
Master's degree	0.79 (0.25)***	0.57 (0.32)*	0.90 (0.43)**
Doctorate degree	-0.33 (0.57)	-0.00 (0.84)	-0.96 (0.76)
County (Baltimore City omitted)			
Anne Arundel County	0.26 (0.22)	0.49 (0.30)	0.19 (0.33)
Baltimore County	0.20 (0.19)	0.54 (0.26)**	-0.20 (0.29)
Carroll County	0.42 (0.31)	0.20 (0.47)	0.76 (0.43)*
Harford County	0.49 (0.28)*	0.91 (0.38)**	0.03 (0.42)
Howard County	0.59 (0.27)**	1.05 (0.36)***	0.12(0.42)
Had outstanding school loan in July 1996	0.54 (0.25)**	0.54 (0.33)	0.76 (0.38)**
Job enhancement scale	0.85 (0.21)***	0.88 (0.27)***	0.79 (0.36)**
Job change scale	-0.11 (0.16)	-0.13 (0.22)	0.01 (0.24)
Earnings growth scale	0.08 (0.21)	0.22 (0.27)	-0.21 (0.33)
Job security scale	0.36 (0.23)	0.03 (0.29)	0.93 (0.40)**
Personal goal scale	0.32 (0.23)	0.77 (0.32)**	-0.23 (0.34)

Exhibit 3-5 (continued)
Factors Associated With the Decision to Obtain Additional Education or Training During the Follow-up Period: July 1996 to June 1998
(logistic regression coefficients; standard errors in parentheses)

Covariates	All Survey Respondents	Females	Males
UI earnings, 1994 Q4 to 1995 Q3 ($25,000-$34,999 omitted)			
<$15,000	-0.21 (0.23)	-0.38 (0.28)	0.15 (0.44)
15,000-24,999	-0.08 (0.18)	-0.40 (0.22)*	0.57 (0.32)*
35,000-49,999	0.02 (0.18)	-0.05 (0.24)	0.13 (0.29)
50,000-74,999	-0.21 (0.23)	-0.01 (0.32)	-0.39 (0.38)
75,000 +	-0.38 (0.38)	-0.71 (0.90)	-0.18 (0.46)
Whether most recent employer offers tuition reimbursement	0.18 (0.14)	0.22 (0.18)	0.23 (0.24)
Presence of children in household in July 1996			
At least one child age 12 or younger	-0.10 (0.17)	0.12 (0.23)	-0.48 (0.27)*
Child(ren), but none age 12 or younger	-0.06 (0.19)	0.17 (0.24)	-0.70 (0.39)*
Change in marital status from July 1996 to survey date			
To separated, divorced or widowed	-0.01 (0.38)	-0.52 (0.51)	0.51 (0.49)
To married	0.28 (0.34)	0.45 (0.50)	0.08 (0.54)
Change in presence of children in household, July 1996 to survey date			
From at least one child to none	0.31 (0.33)	-0.25 (0.43)	1.32 (0.54)**
From none to at least one child	0.38 (0.31)	0.38 (0.47)	0.20 (0.46)
Receipt of UI benefits between July 1996 and survey date	0.27 (0.33)	0.42 (0.43)	0.11 (0.52)
Constant	-3.04 (0.33)***	-2.92 (0.45)***	-2.98 (0.51)***
Respondents who Obtained Additional Education During the Follow-up Period	16.5%	19.2%	13.5%

Source: Maryland State Unemployment Insurance records (earnings), Experian data (county), Lifelong Learning Demonstration Follow-Up Survey (all other covariates).

Sample Definition: Survey sample.

Sample Size: 3,601 survey respondents (1,974 females, 1,627 males).

Notes: All coefficients are obtained from weighted logit regressions using STATA to take into account the complex sample design. Reported enrollment in an educational institution between July 1996 and June 1998 was used as the outcome in all three regressions. Separate dummy variables were included in our models when characteristics were missing for some of the survey respondents, however the coefficient estimates for these variables were not reported in the table. Other race includes Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, and multiple and missing responses. Hispanic persons can be of any race, but are only counted as Hispanic. n/a represents not applicable. For the scale covariates, binary variables were used and were defined to be 1 if the respondent positively identified the statements in Section F of the survey in the "very" or the "somewhat" important or agree categories. Job enhancement scale is the mean of three other binary variables created from the following statements: a) help do job better, b) improve changes of promotion, and c) earn more respect at work. Job change scale was created from the "help make career change" statement. Earnings growth scale was created from the "increase money one can earn" statement. Job security scale is the mean of two other binary variables created from the following statements: a) reduce chances of lay-off, and b) improve chances of finding a job. Personal goal scale is the mean of two other binary variables created from the following statements: a) personal enrichment, and b) be good example to children. *Estimated coefficient statistically significantly different from zero at the .10 level, **at the .05 level, *** at the .01 level.

Younger adults are also likely to have completed their initial schooling spell more recently than older adults, which may mean their study and test-taking skills are less rusty; thus, they have lower internal barriers to overcome in order to participate.

The results in the second and fourth panels indicate that females and single (never married) people are more likely than males and married people to participate in educational activities. This is consistent with the descriptive statistics reported in the literature; however, the results reported here are more robust, because they control for a host of other factors that affect the decision to participate. When the model was estimated separately for females and males, married females were still significantly less likely than single females to participate, but the difference between married and single males was not significantly different.

The third panel of Exhibit 3-5 indicates that people in the "other race" category (Asian, Pacific Islander, Native Hawaiian, American Indian, multiracial) are more likely than other groups to participate in educational activities as adults. However, there are no statistically significant differences in participation across black, white, and Hispanic groups in this model. This is consistent with prior literature on younger age cohorts (recent high school graduates) that finds when socio-economic status and academic background are controlled for, there are no significant difference in college enrollment rates across these racial groups (Mathtech Inc., 1998).[12]

Results by educational attainment in 1996 indicate that people with post-secondary education (post-high school certificate or some college, bachelor's degree, master's degree) are more likely than high school graduates to participate in adult educational activities. This may reflect differences across education groups in tastes and preferences for education. People who have already obtained a post-secondary degree may have a more positive attitude toward education than people who have not obtained a post-secondary degree. It may also indicate that people who already have a post-secondary degree find educational activities less difficult than their counterparts, thus the time and psychological costs are smaller for them.

The next panel in Exhibit 3-5 indicates that residents of Baltimore City are least likely to participate and residents of Harford and Howard County are most likely to participate after

12 In Chapter 4, we compare the characteristics of adult students and non-students. These results (which do not control for other factors) also indicate that there are no significant differences in the participation rates of whites, blacks, and Hispanics. In contrast, the literature on recent high school graduates (e.g., NCES, 1998; Mathtech, 1998; Nakamura, 1999) finds that there are statistically significant differences in enrollment rates when socio-economic factors are not controlled for in the model.

controlling for other factors. Similar results were found for females, but for males, only residents of Carroll County are more likely than Baltimore City residents to participate. Geographical differences may be due to differences in access to educational activities or they may be due to other characteristics of the community for which we could not adequately control in our model.

Based on our findings in the literature review, we hypothesized that people who had outstanding school loans at the start of the demonstration would be less likely to participate in additional education and training activities, i.e., the outstanding loan burden would be a barrier to participation. However, our model indicates that people with outstanding school loans were more likely to participate during the follow-up period.[13] Although outstanding school loans may be a barrier to participation, our results indicate that it is outweighed by other factors associated with having an outstanding loan. For example, strong tastes and preferences education may be correlated with having an outstanding loan burden. Furthermore, students enrolled at least half-time can defer repayment of their loan while in school, which may help negate outstanding loan burdens as a barrier to participation.

The bottom panel on the first page of Exhibit 3-5 show the estimates for the influence of respondents' subjective evaluation of the benefits of additional education. These measures are based on responses to the questions shown in Exhibit 3-2; however, we combined questions about similar types of benefits into scale variables. For example, the job enhancement scale is based on an individual's responses on the importance of additional education "to help you do your job better," "to improve your chances of getting a promotion," and "to earn more respect at your place of employment." For students, the scale is the proportion of these potential benefits that the person reported "*were* very or somewhat important" in the decision to return to school; for all other respondents, it is the proportion of these potential benefits that a person reported they "strongly or somewhat agreed" *would be* a benefit to them of additional education. The rest of the measures in this panel were

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13 Participation in education and training activities during the follow-up period includes activities that started prior to the demonstration (before July 1996). One concern was that the positive coefficient on outstanding loan burden was due to people who received loans for their current educational spell (i.e., one that started before July 1996 and continued during follow-up period). However, the coefficient for outstanding loan burden was positive and significant even when we limited the definition of participation to educational activities that started after July 1, 1996. In fact, results with the more limited definition of participation were almost exactly the same (in terms of sign and statistical significance) as the results presented.

constructed in the same manner; the items included in each scale are listed in the notes at the bottom of the exhibit.

For the model with all survey respondents and for the models run separately for males and females, the job enhancement scale is statistically significant and positively correlated with participation in an educational activity.[14] For females, the personal goal scale ("to be a good example to your children or other relatives" and "for personal enrichment") was also positive and significantly related to participation in an educational activity, whereas for males the job security scale ("to reduce the chance you would be laid off in the future" and "to improve your chances of finding another job if you lose or quit your current job") was also positive and significant. These results suggest that the perceived benefits of additional education are important determinants of the decision to obtain additional education and training, even when other relevant factors are taken into account.[15]

The top of the second page of Exhibit 3-5 shows the results for various measures of barriers that may hinder participation in educational programs.[16] The first panel shows estimates for various levels of earnings prior to the start of the demonstration. Our review of the literature indicated that the cost of education was a major barrier for adults considering additional education. Since people with higher earnings may be more easily able to overcome this barrier, it could be hypothesized that higher earners would be more likely to participate in educational activities. However, higher earners may also have a greater opportunity cost to obtaining additional education if they have to work less (and earn less) while participating. Furthermore, higher earners may be further along in their career; thus, the period over which they can receive work-related benefits may be shorter. Finally, lower

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14 The items in the job enhancement scale were only asked of people employed at the time of the survey; however, the estimated coefficient was still positive and significant when we limited the regression sample to people employed at the time of the survey.

15 Note that students in the follow-up period were asked about how important these potential benefits *were* in their decision to participate in an education or training activity in which they had already participated or were currently participating. Thus, their responses might be influenced by the activity. However, the results in Exhibit 3-6 show that even more of the "expected benefit" variables are correlatedwhen the outcome includes both past/current participants and people considering enrolling in the future. Hence, it suggests that it is a priori expected benefits rather than just ex-post reflections on what expected benefits were that is associated with participation in adult education and training activities.

16 Measures of the perceptions of barriers based on information shown in Exhibits 3-3 and 3-4 are not included in the model because these questions were only asked of respondents who participated in or applied for a formal education or training program in the follow-up period or were considering attending one in the future. Questions on barriers would not provide meaningful information from respondents who were not even considering enrolling in an educational activity.

earners — who also tend to be less educated — may be more likely to have less education than they desire. These last three reasons could lead to the hypothesis that higher earners are less likely to participate in educational activities. The results indicate that these two contradictory forces balance each other out. For the entire sample, earnings are not correlated with participating in educational activities. This is consistent with Anderson and Darkenwald's analysis (1979) that found no correlation between earnings and participation when other factors (such as educational attainment and age) were controlled for in the model. The overall conclusion to be drawn from these results is that earnings are not strongly correlated with participation in educational activities when other relevant factors are taken into account.

The next panel shows the estimates for another factor that may help participants overcome the financial barrier to participate: whether their most recent employer offers reimbursement for tuition costs. Although the coefficient is positive for all three models, it is not statistically significant in any of the models.[17]

The next panel shows estimates of the effect of having children in the household prior to the start of the demonstration. It was thought that children, especially young children, would be a barrier to obtaining additional education because of the expenses and time required to raise children. However, for all survey respondents in this model, children in the household has no effect on participation in educational activities. When broken down by gender, the presence of children did have a significant negative association with participation for males, but not for females.

Finally, the remaining panels show the results of tests of whether "trigger" events that occurred during the follow-up period had an effect on participation in education and training. As we mentioned earlier, triggers are events that mark the transition from one status to another and can lead to a reassessment of the costs and benefits of obtaining additional education and training. Aslanian and Brickell (1980) found that many adult students pointed to trigger events as leading them to acquire additional education or training. The trigger events that we measured include a change in marital status (one variable indicating the respondent got married and a second variable indicating the respondent became separated,

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17 When we restricted the sample to people employed at the time of the survey (not shown), the coefficient estimate for the variable indicating that their employer offered tuition reimbursement was positive and statistically significant.

divorced, or widowed during the two-year follow-up period); a change in the presence of children in the household (one variable indicating a change from zero to at least one child and a second variable indicating a change from at least one to no children in the household); and involuntary job loss (proxied by receipt of unemployment insurance benefits). With one exception, none of these variables had a statistically significant effect on participation in educational activities. The one exception is that a change from at least one child to none living in the household was positively correlated with males' decisions to acquire additional education or training.[18] This is consistent with the earlier finding that the presence of children in the household reduces the likelihood of males engaging in education or training.

Factors associated with participation and plans to participate in educational activities. We also analyzed the factors associated with either participating in or considering future participation in education and formal training. We used the same estimation procedures and covariates as in the prior models, but set the binary dependent variable equal to one if the respondent enrolled during the follow-up period or reported they were considering going back to school or getting additional formal training (42 percent of the population). The estimation results for all survey respondents are shown in Exhibit 3-6.

Overall, the results are very similar to those from those for actual participation in educational activities shown in the previous exhibit; however, more factors are statistically significant in this model. The increased number of significant results is likely due to the similarity in factors that influence a person to enroll in an educational activity and the factors that influence a person to consider enrolling in the future. Thus, when only actual participants are compared with the rest of the population, the differences between the two groups are diluted by the similarity between participants and the large number of potential participants who are included in the rest of the population. Grouping actual participants and potential participants yields a much sharper contrast. This is an important methodological finding for studies of this type.

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18 The timing of the trigger events and the period over which we observe educational participation coincide. If the trigger event occurred at the beginning of the follow-up period, we have information on educational activities for almost two years after the event, but if it occurred later in the follow-up period have a shorter observation window, even less than a month if it occurred just before the survey. Thus, this is not a definitive test of the trigger theory. It would be better to observe educational participation for at least a two year period after the trigger event, but this was not possible in this study.

Exhibit 3-6
Factors Associated With the Decision to Obtain Additional Education or Training During the Follow-up Period (July 1996 to June 1998) or in the Future (logistic regression coefficients; standard errors in parentheses)

Covariates	All Survey Respondents
Age in July 1996 (30-39 omitted)	
29 or less	0.69 (0.21)***
40-49	-0.47 (0.14)***
50-59	-1.06 (0.18)***
60+	-1.69 (0.31)***
Female	0.46 (.12)***
Race (White omitted)	
Black	0.50 (0.15)***
Hispanic	0.23 (0.40)
Other	0.75 (0.30)**
Marital Status in July 1996 (Single omitted)	
Married	-0.19 (0.17)
Divorced/Widowed/Separated	0.07 (0.20)
Educational Attainment in July 1996 [High school (HS) degree omitted]	
Less than HS	0.70 (0.30)
Post HS certificate or some college	0.54 (0.16)***
Associate's degree	0.58 (0.24)**
Bachelor's degree	0.44 (0.16)***
Professional certificate	0.31 (0.30)
Master's degree	0.77 (0.21)***
Doctorate degree	-0.16 (0.43)
County (Baltimore City omitted)	
Anne Arundel County	-0.07 (0.19)
Baltimore County	0.05 (0.17)
Carroll County	0.04 (0.26)
Harford County	-0.03 (0.23)
Howard County	0.46 (0.23)**
Had outstanding school loan in July 1996	0.30 (0.24)
Job enhancement scale	0.29 (0.17)*
Job change scale	-0.03 (0.13)
Earnings growth scale	0.66 (0.16)***
Job security scale	0.77 (0.19)***
Personal goal scale	0.85 (0.19)***

Exhibit 3-6 (continued)
Factors Associated With the Decision to Obtain Additional Education or Training During the Follow-up Period (July 1996 to June 1998) or in the Future (logistic regression coefficients; standard errors in parentheses)

Covariates	All Survey Respondents
UI earnings, 1994 Q4 to 1995 Q3 ($25,000-$34,999 omitted)	
<$15,000	-0.20 (0.19)
15,000-24,999	-0.19 (0.16)
35,000-49,999	0.03 (0.16)
50,000-74,999	-0.03 (0.19)
75,000 +	-0.79 (0.30)***
Whether most recent employer offers tuition reimbursement	0.09 (0.12)
Presence of children in household in July 1996 (No children in household omitted)	
At least one child age 12 or younger	-0.26 (0.15)*
Child(ren), but none age 12 or younger	-0.06 (0.16)
Change in marital status from July 1996 to survey date	
To separated, divorced or widowed	0.72 (0.30)**
To married	0.36 (0.35)
Change in presence of children in household from July 1996 to survey date	
From at least one child to none	0.38 (0.28)
From none to at least one child	-0.06 (0.31)
Receipt of unemployment insurance benefit between July 1996 and survey date	0.69 (0.28)**
Constant	-2.27 (0.28)***
Percent of Respondents who Obtained Additional Education During the Follow-up Period or Plan to Obtain Additional Education in the Future	42.1%

Source: Maryland State Unemployment Insurance records (earnings); Experian data (county); Lifelong Learning Demonstration Follow-Up Survey (all other covariates)

Sample Definition: Survey sample

Sample Size: 3,601 survey respondents

Notes: All coefficients are obtained from weighted logit regressions using STATA to take into account the complex sample design. Reported enrollment in an educational institution between July 1, 1996 and June 1, 1998 or reported plan to enroll in an educational institution in the future was used as the outcome in all three regressions. Separate dummy variables were included in our regression models when characteristics were missing for some of the survey respondents; however the coefficient estimates for these variables were not reported in the exhibit. Other race includes Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, and multiple and missing responses. Hispanic persons can be of any race, but are only counted as Hispanic. n/a represents not applicable. For the scale covariates, binary variables were used and were defined to be 1 if the respondent positively identified the statements in Section F of the survey in the "very" or the "somewhat" degrees. Job enhancement scale is the mean of three other binary variables created from the following statements: a) help do job better, b) improve changes of promotion, and c) earn more respect at work. Job change scale was created from the "help make career change" statement. Earnings growth scale was created from the "increase money one can earn" statement. Job security scale is the mean of two other binary variables created from the following statements: a) reduce chances of lay-off, and b) improve chances of finding a job. Personal goal scale is the mean of two other binary variables created from the following statements: a) personal enrichment, and b) be good example to children. *Estimated coefficient statistically significantly different from zero at the .10 level; ** at the .05 level; *** at the .01 level.

Rather than repeating the findings that are similar to the earlier models, only the noteworthy differences will be described in this section. First, as can be seen in the third panel of Exhibit 3-6, blacks are more likely than whites to participate or plan to participate in educational activities in the future. The earlier model also had a positive coefficient estimate for blacks, but it was not statistically significant.

Second, several more of the scales measuring expected benefits of obtaining additional education have positive and statistically significant estimates in this model. In addition to the job enhancement scale that was significant in the earlier model, the earnings growth scale ("increase money I can earn"), job security scale ("reduce my chances of being laid off " and "improve my chances of finding a job if laid off"), and the personal goal scale ("be a good role model to children and relatives" and "personal enrichment"), are all positively correlated with actual or planned future participation in education and formal training programs. These results even more clearly indicate that the decision to participate in education and training programs is strongly correlated with the individual's subjective evaluation of the benefits.

Finally, two of the "trigger-event" variables, which prior research has suggested are factors in the timing of the decision to participate in educational activities, are statistically significant factors in this model. Becoming involuntarily unemployed (as measured by receipt of unemployment insurance benefits) and becoming separated, divorced, or widowed in the follow-up period is positively correlated with actual or planned participation in education and training programs. Perhaps the life transitions and subsequent reassessment of the benefits of education and training instigated by the trigger event take time to affect participation patterns, but become evident sooner in plans for the future.

An analysis of brochure respondents. Treatment group members who requested information about participating schools in response to the Lifelong Learning Demonstration public information campaign are categorized as brochure respondents.[19] In this section, we investigate the factors associated with being a brochure respondent and whether the factors that affect participation in education and training programs are the same for brochure

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19 Brochure respondents requested information on programs offered at participating Baltimore area schools in response to the demonstration's targeted public information campaign. They were also sent a Self-Starter Guide and a Department of Education financial aid informational brochure.

respondents as for all mature incumbent workers.[20] A higher proportion of brochure respondents (25 percent) than all mature incumbent workers (17 percent) participated in an education or training program during the follow-up period. This suggests that the brochure respondents are not a representative subgroup of all mature incumbent workers and raises the question of what distinguishes them from all adult workers. This question is addressed in the model estimating factors associated with responding to the informational brochure. At the same time, the 25 percent participation rate among brochure respondents also raises the question of why did so many people request information on local education institutions, but did not participate in an education or training program. The second model investigates this question by examining whether the same factors are associated with brochure respondents' decision to participate in an educational program as for all adult workers. Results from both models are shown in Exhibit 3-7.

The youngest adults (under age 30), blacks, and residents of Baltimore City were more likely than their counterparts to be brochure respondents. This may be because blacks and city residents have less access to information about educational opportunities than the more affluent residents of the suburban counties. People who reported that an important expected benefit of additional education was "to help me make a career change that I would like to make" and people who were involuntarily unemployed were also significantly more likely than their counterparts to be a brochure respondent. These findings suggest that one motivation for responding to the brochure was to look around to see what programs local schools offered that might lead to a new career.

The second column in Exhibit 3-7 shows the estimates for the participation in education and training programs model among brochure respondents. Here, we will just describe the noteworthy differences between these results and the results for the entire survey sample. The clearest difference is that very few factors are significantly associated with participation.

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20 Since control group members were not targeted by the public information campaign, and thus did not have the opportunity to respond to the informational brochure, only treatment group members are included in the sample for this analysis. While this reduces the sample size, the treatment group is representative of all mature incumbent workers in the Baltimore area.

Exhibit 3-7
Factors Associated With the Decision to Request Additional Information on Participating Schools and Factors Associated With the Decision to Obtain Additional Education or Training During the Follow-up Period for the Brochure Respondents (logistic regression coefficients; standard errors in parentheses)

Covariates	Whether Brochure Respondent (All Survey Respondents in Treatment Group)	Whether Obtained Additional Education During the Follow-up Period (Brochure Respondents)
Age in July 1996 (30-39 omitted)		
29 or less	-0.10 (0.20)	0.14 (0.26)
40-49	-0.20 (0.14)	-0.02 (0.20)
50-59	-0.73 (0.19)***	-0.83 (0.35)**
60+	-1.15 (0.28)***	-0.32 (0.52)
Female	-0.10 (0.12)	0.54 (0.18)***
Race (White omitted)		
Black	0.44 (0.14)***	0.20 (0.21)
Hispanic	0.38 (0.40)	-0.75 (0.87)
Other	0.53 (0.24)**	0.31 (0.33)
Marital Status in July 1996 (Single omitted)		
Married	0.07 (0.16)	0.19 (0.22)
Divorced/Widowed/Separated	-0.05 (0.19)	-0.06 (0.27)
Educational Attainment in July 1996 [High school (HS)degree omitted]		
Less than HS	-0.21 (0.31)	-0.10 (0.59)
Post HS certificate or some college	0.17 (0.15)	0.14 (0.23)
Associate's degree	0.32 (0.22)	0.15 (0.31)
Bachelor's degree	0.08 (0.16)	0.40 (0.25)
Professional certificate	0.04 (0.34)	-0.82 (0.65)
Master's degree	0.12 (0.23)	0.81 (0.33)**
Doctorate degree	-0.60 (0.41)	-1.04 (0.98)
County (Baltimore City omitted)		
Anne Arundel County	-0.63 (0.18)***	0.25 (0.29)
Baltimore County	-0.34 (0.15)**	0.32 (0.22)
Carroll County	-0.92 (0.28)***	0.57 (0.45)
Harford County	-0.63 (0.25)**	0.50 (0.42)
Howard County	-0.39 (0.23)*	1.10 (0.32)***
Had outstanding school loan in July 1996	-0.08 (0.21)	0.18 (0.31)
Job enhancement scale	-1.10 (0.18)	0.68 (0.27)**
Job change scale	0.42 (0.14)***	0.09 (0.24)
Earnings growth scale	0.14 (0.16)	0.09 (0.28)
Job security scale	0.22 (0.20)	-0.17 (0.30)

Exhibit 3-7 (continued)

Factors Associated With the Decision to Request Additional Information on Participating Schools and Factors Associated With the Decision to Obtain Additional Education or Training During the Follow-up Period for the Brochure Respondents (logistic regression coefficients; standard errors in parentheses)

Covariates	Whether Brochure Respondent (All Survey Respondents in Treatment Group)	Whether Obtained Additional Education During the Follow-up Period (Brochure Respondents)
Personal goal scale	0.31 (0.19)	-0.00 (0.33)
UI earnings, 1994 Q4 to 1995 Q3 ($25,000-$34,999 omitted)		
<$15,000	0.43 (0.19)	-0.20 (0.29)
15,000-24,999	0.24 (0.15)	0.16 (0.21)
35,000-49,999	0.11 (0.16)	-0.33 (0.26)
50,000-74,999	-0.16 (0.20)	0.35 (0.32)
Whether most recent employer offers tuition reimbursement	0.07 (0.12)	-0.05 (0.18)
Presence of children in household in July 1996 (No children in household omitted)		
At least one child age 12 or younger	-0.07 (0.15)	-0.61 (0.21)***
Child(ren), but none age 12 or younger	-0.06 (0.17)	-0.59 (0.27)**
Change in marital status from July 1996 to survey date		
Got separated, divorced or widowed	-0.23 (0.31)	-0.67 (0.52)
Got married	-0.35 (0.37)	0.97 (0.53)*
Change in presence of children in household from July 1996 to survey date		
From at least one child to none	-0.22 (0.27)	0.75 (0.44)*
From none to at least one child	0.15 (0.27)	-0.65 (0.45)
Receipt of unemployment insurance benefit between July 1996 and survey date	0.47 (0.26)*	-0.30 (0.39)
Constant	-4.12 (0.27)***	-2.02 (0.43)***
Percent of Respondents	2.4%	24.8%

Source: Maryland State Unemployment Insurance records (earnings); Experian data (county); Lifelong Learning Demonstration Follow-Up Survey (all other covariates).

Sample Definition: Survey sample and brochure respondents from the survey sample.

Sample Size: 2,271 treatment group members among survey respondents; 939 brochure respondents.

Notes: All coefficients are obtained from weighted logit regressions using STATA to take into account the complex sample design. Whether a brochure respondents was used as the outcome in the first regression. Reported enrollment in an educational institution between July 1, 1996 and June 1, 1998 was used as the outcome in the second regression. Separate dummy variables were included in our regression models when characteristics were missing for some of the survey respondents; however, the coefficient estimates for these variables are not shown in the exhibit. Other race includes Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, and multiple and missing responses. Hispanic persons can be of any race, but are only counted as Hispanic. n/a represents not applicable. For the scale covariates, binary variables were used and were defined to be 1 if the respondent positively identified the statements in Section F of the survey in the "very" or the "somewhat" degrees. Job enhancement scale is the mean of three other binary variables created from the following statements: a) help do job better, b) improve changes of promotion, and c) earn more respect at work. Job change scale was created from the "help make career change" statement. Earnings growth scale was created from the "increase money one can earn" statement. Job security scale is the mean of two other binary variables created from the following statements: a) reduce chances of lay-off, and b) improve chances of finding a job. Personal goal scale is the mean of two other binary variables created from the following statements: a) personal enrichment, and b) be good example to children. *Estimated coefficient statistically significantly different from zero at the .10 level, ** at the .05 level, *** at the .01 level.

Moreover, the only significant factors in this model that were not significant in the all sample model is the negative association with having younger or older children and the positive association with the trigger event, moving from at least one child to none in the follow-up period.

This lack of significant effects is, in part, a result of the less precise estimates due to a smaller sample, but an examination of the results indicate that a majority of coefficient estimates themselves seem to be closer to zero than in the all survey respondent model. This suggests that among brochure respondents, the observable differences between participants and non-participants are not what distinguishes the decision on whether or not to return to school.

Our interpretation of these results is that the factors that lead workers to take the first step toward returning to school (seeking more information about educational opportunities) tend to be more objective, observable characteristics than the factors that determine which of these workers actually participate in an education or training program. The factors that determine which of these workers ultimately participate is likely a combination of unmodeled factors and the idiosyncrasies of individual situations.

Summary

In this chapter, we investigated the factors that are associated with the decision of mature incumbent workers to participate in formal education and training activities. This investigation was based on a review of prior literature and the results of the Lifelong Learning Demonstration Follow-Up Survey administered to 3,601 mature incumbent workers in the Greater Baltimore area. After first reviewing the participation rates of mature incumbent workers in prior studies and the demonstration sample, we described a conceptual framework for the decision to return to school. We then presented respondents' perceptions of the expected benefits of further education and training, and barriers to participation. Finally, we used a multivariate model to analyze factors that may be correlated with educational participation to determine which factors are significant even after controlling for other relevant factors.

About one sixth of the adult workers in the Baltimore area reported participating in a formal education or training program within the last two years. This participation rate is in the low end of the range of estimated participation rates in the literature, because it relies on a more formal definition of an educational activity and because the population of interest is older and more firmly attached to the workforce than the universe for the other studies cited.

When respondents were asked how important potential benefits of education were to their decision to participate in an educational activity or (if they had not participated) whether they believed they would receive these benefits if they participated, the benefits most frequently cited were "personal enrichment," "improve chances of finding a job if I lose or quit my current job," and "increase the amount of money I can earn." Respondents who had participated recently in an education or training activity or were considering participation in the future were significantly more likely to respond that they would receive each expected benefit than respondents who had not recently enrolled and were not considering enrolling in the future. However, a significant proportion (usually more than one-third) of the people who did not obtain and do not plan to obtain additional education or training still strongly agreed they would receive these benefits if they did participate. For these people, the barriers to participation or their distaste for educational activities must outweigh the perceived benefits.

We also asked respondents about problems with several barriers they may encounter in participating in formal education and training programs. Lack of time to due classwork and balancing work responsibilities with school were cited as "big problems" by about one-fourth of the respondents and paying for school or training was cited by about one-fifth of the respondents. Potential students and applicants were about twice as likely as students to cite "paying for school or training", "finding the course you want at a time of day you can take it," and "finding the course you want on days of the week you can take it" as big problems. Whether from actual experience of trying to obtain additional education (as most applicants and some potential are likely to have) or from a distance, applicants and students clearly see inconvenient scheduling as a major barrier.

To identify factors associated with a mature incumbent worker's decision to participate in formal education and training programs when other factors were controlled for, we conducted logistic regression analysis on the decision to participate in the follow-up period. The covariates included in the model include personal characteristics that may affect the

tastes and preferences for education or the expected benefits and costs, perceptions of benefits of additional education, potential barriers, and trigger events that may cause a reevaluation of the costs and benefits of education.

Consistent with qualitative and descriptive findings in prior research, we found that younger adults, females, single (never married) people, and people with post-baccalaureate degrees are more likely than their counterparts to participate in educational activities. Also consistent with prior research, we found no racial differences in participation in education and formal training programs among the population of mature incumbent workers when controls for socio-economic background factors are included in the model.

We included several measures of the respondent's perception of the expected benefits to them of additional education and training. Respondents who expected benefits that would help them on their current job were statistically significantly more likely to participate in an education or training program. The job enhancement variable is based on an individual's responses on the importance of additional education "to help you do your job better," "to improve your chances of getting a promotion," and " to earn more respect at your place of employment." For females, the personal goal scale ("to be a good example to your children or other relatives" and "for personal enrichment") was also positive and significantly related to participation in an educational activity, whereas for males the job security scale ("to reduce the chance you would be laid off in the future" and "to improve your chances of finding another job if you lose or quit your current job") was also positive and significant. The other expected benefit variables almost always had the hypothesized positive sign, but were not statistically significant.

Several variables indicating barriers to obtaining additional education (prior school loans, presence of children and young children) and variables that could help alleviate the financial barrier (high earnings, works for employer with tuition reimbursement program) were also included in the model. Prior research has indicated that having outstanding school loans may be a barrier to participation in educational activities. However, our model indicates that people with outstanding loans were more likely to participate during the follow-up period. Although outstanding school loans may be a barrier to participation, our results indicate that it is outweighed by other factors associated with having an outstanding loan. For example, strong tastes and preferences for additional education which increase the

motivation to obtain additional education may be correlated with having an outstanding loan. Furthermore, students enrolled at least half-time can defer repayment of their loan while in school, which may help negate outstanding loan burdens as a barrier to participation. None of the other measures of barriers or barrier alleviators had a significant association with the decision to participate in school for the model based on all survey respondents.

As part of this analysis, we tested whether "trigger" events that occur during the follow-up period have an effect on participation in educational activities. Triggers are events that mark the transition from one status to another and can lead to a reassessment of the costs and benefits of obtaining additional education and training. The trigger events that we measured include a change in marital status; a change in the presence of children in the household; and involuntary job loss. The only one of these variables that had a statistically significant effect on participation in educational activities was a change from at least one child to none living in the household, which was positively correlated with males' decision to acquire additional education or training.

Finally, we modeled the decision to begin exploring educational opportunities by requesting information about local schools in response to the demonstration brochure and the subsequent participation in education and training programs by brochure respondents. We found that the factors that lead workers to take the first step toward returning to school (seeking more information about educational opportunities) tend to be more objective, observable characteristics than the factors that determine which of these workers actually participate in an education or training program. The factors that determine which brochure respondents ultimately participate is likely a combination of unmodeled factors and the idiosyncrasies of individual situations.

Chapter 4

Characteristics of Students and School Experiences

This chapter focuses on mature incumbent workers who participated in an education or training program ("students") during the demonstration follow-up period: July 1996 through June 1998. The first section compares the demographic characteristics of students with non-students and students at different types of education and training institutions. This section also describes the schooling experience of adult students, including area of study, credits earned, degree sought and earned, and time of classes. The last section examines barriers that students had to overcome to participate in their chosen education and training program. This includes a summary of education-related expenses, financial aid use and amount, child-care expenses, lifestyle adjustments adults made to participate in an educational activity, reasons respondents gave for not completing their chosen program, and students' (and potential students') perceptions of the importance of selected features of financial aid programs and school services.

Characteristics of Students and the Schooling Experience

As discussed in Chapter 3, one sixth (17 percent) of mature incumbent workers in the Greater Baltimore area participated in a formal education or training program, lasting two weeks or more, during the follow-up period (excluding training provided by their employer at their place of employment). Here, we compare the characteristics of these students with non-students and we compare the characteristics of students at different types of educational institutions. Then, we describe the schooling experience of these adult students.

Characteristics of students. Exhibit 4-1 shows the comparison between students and non-students. Their characteristics are statistically significantly different on six of the nine characteristics compared. Students as a group are more highly educated, younger, and more likely to be female and single (never married) than non-students. In addition, students were more likely to have an outstanding school loan in July 1996 and more likely to work for an employer who offered tuition reimbursement as a benefit. However, there are no

Exhibit 4-1
Characteristics of Students and Non-Students

Characteristic	Students	Non-Students
Education in July 1996***		
High school	26.1%	37.5%
Some college	20.4	18.2
Associate's degree	6.9	6.5
Bachelor's degree	28.6	22.3
Post baccalaureate degree or certificate	18.1	15.5
Female***	60.8%	50.5%
Race/ethnicity		
White	72.4%	77.3%
Black	21.0	17.9
Hispanic	1.4	1.8
Other	5.2	3.1
Age in 1996***		
35 or less	44.3%	23.0%
36-49	41.4	46.6
50+	14.2	30.4
Marital Status in 1996***		
Single, never married	29.3%	16.2%
Married	54.8	67.3
Divorced/widowed/separated	15.9	16.6
Children living in household in 1996	52.1%	56.1%
UI Earnings, 1994 Q4 to 1995 Q3		
<$15,000	11.4%	12.5%
15,000-24,999	23.4	22.2
25,000-34,999	29.2	24.3
35,000-49,999	22.3	22.3
50,000-74,999	11.0	13.5
75,000+	2.8	5.3
Employer offers tuition reimbursement***	71.0%	60.7%
Had outstanding school loans in 1996***	11.1%	4.4%

Sources: Maryland State Unemployment Insurance records (earnings) Lifelong Learning Demonstration Follow-Up Survey (all other characteristics including student and non-student classification).

Sample Definition: Survey sample.

Sample Size: 3,601 survey respondents (1,086 students and 2,515 non-students). Actual sample size may vary slightly across cells due to missing data for characteristics.

Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.

High school includes less than high school, high school diploma or GED, and post high-school certificate. Post baccalaureate includes professional certificate, master's degree, professional degree and doctoral degree. CBO stands for community-based organization such as library, church, community center, or social service agency. Other race includes Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, and multiple responses. Hispanic persons can be of any race, but are only counted as Hispanic.

*Statistically significant difference between students and non-students at the 0.10 level (chi-square test); ** at the 0.05 level; *** at the 0.01 level.

significant differences between students and non-students in racial characteristics, earnings, and the presence of children in the household. The adult students have the following characteristics:

- nearly three-fourths have at least some college education;
- 61 percent are females;
- 56 percent are age 36 or older;
- 55 percent are married;
- 71 percent worked for employers that offered tuition reimbursement as a benefit;
- 11 percent had outstanding school loans at the beginning of the demonstration; and,
- racial characteristics and pre-demonstration earnings similar to the entire population of mature incumbent workers

Exhibit 4-2 shows the characteristics of students by the type of education or training institution they attended. Attendance at two-year schools was most common (39 percent), followed by four-year schools (25 percent), private career or training institutions (19 percent), graduate schools (17 percent), and community-based organizations (7 percent).[1] The top panel of the exhibit indicates clear differences in prior education levels for adult workers at different types of educational institutions. Not surprisingly, students at graduate and four-year undergraduate schools are more highly educated than other students; 95 percent of students at graduate schools have at least a bachelor's degree as do 52 percent of students at four-year schools. However, although it is less common, a large proportion of students at other schools also have at least a bachelor's degree: about 40 percent of students at private career and training schools or community-based organizations and 27 percent of students at two-year schools. The second panel indicates that females make up a larger share of adult workers attending four-year schools and a smaller share of those attending private career and training institutions.

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1 These percentages add up to more than 100 percent because students were included in each type of institution they attended during the follow-up period; thus, students who attended more than one type of institution were counted more than once in these calculations.

Exhibit 4-2
Characteristics of Students, by Type of Institution

Characteristic	All	Type of Institution: Graduate	Four-year Undergrad	Two-year Undergrad	Private	CBO
Percent of total students	100.0%	17.4%	25.4%	38.6%	18.8%	7.0%
Education in July 1996		***	**	***	**	
High school	26.1%	0.4%	16.0%	34.2%	41.3%	38.9%
Some college	20.4	0.9	21.2	30.7	16.0	11.1
Associate's degree	6.9	3.5	11.2	8.4	2.9	9.2
Bachelor's degree	28.6	57.9	33.2	17.9	26.3	10.9
Post baccalaureate degree or certificate	18.1	37.3	18.5	8.8	13.5	29.9
Female	60.8%	59.7%	78.3%**	61.3%	39.8%**	71.5%
Race/ethnicity						
White	72.4%	79.8%	71.7%	72.5%	70.1%	63.4%
Black	21.0	14.6	21.2	21.2	23.5	26.3
Hispanic	1.4	0.6	0.6	1.2	2.1	5.2
Other	5.2	5.1	6.4	5.1	4.4	5.0
Age in 1996		*				
35 or less	44.3%	55.0%	48.2%	41.5%	45.5%	32.7%
36-49	41.4	37.6	41.6	44.1	38.6	46.0
50+	14.2	7.4	10.1	14.4	15.9	21.3
Marital status in 1996				**		
Single, never married	29.3%	30.3%	35.0%	23.7%	32.7%	15.7%
Married	54.7	60.7	49.0	55.0	57.4	60.1
Divorced/widowed/ separated	15.9	9.0	16.1	21.3	9.9	24.1
Children living in household in 1996	52.1%	44.5%	54.8%	56.4%	44.7%	49.9%
UI Earnings, 1994 Q4 to 1995 Q3		***		**		
<$15,000	11.4%	7.5%	7.7%	17.8%	10.4%	4.7%
15,000-24,999	23.4	11.3	25.4	24.0	31.4	35.3
25,000-34,999	29.2	27.0	37.9	28.1	16.6	16.8
35,000-49,999	22.3	29.5	15.6	21.8	28.4	15.0
50,000-74,999	11.0	18.0	11.6	6.3	11.2	19.3
75,000 +	2.8	6.7	1.9	2.0	2.1	9.0

Exhibit 4-2 (continued)
Characteristics of Students, by Type of Institution

Characteristic	All	Type of Institution: Graduate	Four-year Undergrad	Two-year Undergrad	Private	CBO
Employer offers tuition reimbursement	71.0%	86.3%***	73.4%	62.6%***	70.0%	64.8%
Had outstanding school loans in 1996	11.1%	16.7%	13.8%	8.1%	10.4%	5.9%
Had outstanding school loans in 1998	11.3%	16.9%	17.9%**	8.5%	8.8%	1.0%**

Sources: Maryland State Unemployment Insurance records (earnings).
Lifelong Learning Demonstration Follow-Up Survey (all other characteristics).

Sample Definition: Survey respondents who attended education or training institution in follow-up period (7/1/96 to 6/1/98).

Sample Size: 1,086 students.

Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.
High school includes less than high school, high school diploma or GED, and post high-school certificate. Post baccalaureate includes professional certificate, master's degree, professional degree and doctoral degree. CBO stands for community-based organization such as library, church, community center, or social service agency. Other race includes Asian, Native Hawaiian or Pacific Islander, American Indian or Alaska Native, and multiple responses. Hispanic persons can be of any race, but are only counted as Hispanic. Row totals may sum to > 100% because students may have attended more than one institution in follow-up period.
* Distribution or percentage is statistically significantly different from average of other 4 types of institutions at .10 level (chi-square test); ** at .05 level; *** at .01 level.

Race/ethnicity, age, presence of children, and marital status did not differ significantly across types of institution, except that graduate students tended to be older and students at two-year colleges were somewhat less likely to be married than those at other institutions.

The bottom panel of the first page of Exhibit 4-2 also shows some differences in pre-demonstration earnings levels by type of institution. In this population, higher-earning students are disproportionately more likely to take courses at graduate schools (54 percent earned over $35,000) and less likely to take courses at two-year schools (only 30 percent earned over $35,000). Furthermore, students in graduate schools are more likely than other students to work for employers that offer tuition reimbursement as a benefit (86 percent) and students at two-year schools are less likely to have this benefit at work (63 percent).

There were no significant differences among the student groups in the incidence of school loans in 1996, although by 1998 those who attended four-year colleges during the follow-up period were more likely than other students to have loans outstanding, and those who took training courses at a CBO were less likely.

Characteristics of the Schooling Experience. Exhibit 4-3 shows a number of different characteristics of the adult students' schooling experience. The top panel shows that students studied a wide variety of topics, with courses in computer and information sciences (21 percent), business and management (17 percent), and education (12 percent) the most common areas of study. The second panel show that over two-thirds of the students were seeking a degree or certificate as part of their educational program. Most of the degrees or certificates being sought were at the bachelor's degree level or higher: 19 percent were seeking some type of professional-level certification, 18 percent a post-baccalaureate degree (e.g., master's, law, doctorate degrees) and 14 percent were seeking a bachelor's degree.

The bottom two panels of the exhibit demonstrate that most of the adult students are part-time, evening students. A majority (57 percent) earned six or fewer credits, the equivalent of two semester courses, in any education spell during the follow-up period,[2] while about 12 percent earned more than 30 credits in this time period.

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2 Spells were defined by the school attended. If the student attended more than one school or training institution (as did 187 out of the 1,086 students), their credits earned were included separately in this calculation. Quarter credits were converted to semester-equivalent credits by dividing by 1.5, non-credit and training hours were converted by dividing number of hours attended by 25.

Exhibit 4-3
Characteristics of Schooling Experiences During Follow-up Period

Experience	Percent
Major/area of study	
Computer and information sciences	21.0%
Business and management	16.8
Education	11.6
Letters (e.g. literature, reading, writing, philosophy)	6.1
Health professions	5.6
Science and mathematics	4.2
Engineering	4.0
Fine and applied arts	4.0
Psychology	3.0
Technical training	2.8
Law	2.2
Other major	18.6
Degree or certificate sought	
No degree sought	31.6%
High school diploma or GED	1.4
Post high school training certificate	4.5
Associate's degree	8.8
Bachelor's degree	13.8
Professional certificate	18.5
Post baccalaureate degree	17.7
Other degree or certificate	3.7
Number of semester-equivalent credits earned in school or training spell	
0.1 - 3	38.2
3.1 - 6	18.3
6.1 - 15	19.3
15.1- 30	12.4
30.1 -60	8.0
60.1+	3.7
Time of classes	
Evening	62.4%
Day	24.1
Both	13.5
During the week	77.9%
On the weekend	7.3
Both	14.8

Exhibit 4-3 (continued)
Characteristics of Schooling Experiences During Follow-up Period

Experience	Percent	
Amount of time studying (hours per week)		
0	5.5%	
1 - 5	46.9	
6 - 10	28.8	
11 - 20	12.8	
21+	5.9	
Degree or certificate received		
No degree received during follow-up period	63.4%	
High school diploma or GED	0.8	
Post high school training certificate	6.1	
Associate's degree	1.8	
Bachelor's degree	2.3	
Professional certificate	10.7	
Post baccalaureate degree	5.6	
Other degree or certificate	9.3	
Participation status at end of follow-up period		
Graduated or completed program		54.7%
Two-year undergraduate	30.4%	
Four-year undergraduate	18.4	
Graduate	10.6	
Private	22.2	
CBO	10.8	
Uncategorized or unknown	7.6	
Continuing student		30.4%
Two-year undergraduate	27.4%	
Four-year undergraduate	35.8	
Graduate	22.8	
Private	10.8	
CBO	2.1	
Uncategorized or unknown	1.2	
No longer continuing		14.8%
Two-year undergraduate	51.9%	
Four-year undergraduate	20.1	
Graduate	15.9	
Private	11.5	
CBO	0.1	
Uncategorized or unknown	0.4	

Exhibit 4-3 (continued)
Characteristics of Schooling Experiences During Follow-up Period

Experience	Percent
Miles traveled to education or training institution (one-way)	
0	3.4%
1 - 5	24.2
6 - 10	20.9
11 - 20	33.2
21+	18.3
Average travel distance	14.2 miles
Mode of transportation	
Own vehicle	88.5%
Walk or bike	6.3
Public transportation	2.5
Ride with someone	2.0
Company car	0.6

Source: Lifelong Learning Demonstration Follow-Up Survey.
Sample Definition: Survey respondents who attended education or training institution in follow-up period (7/1/96 to 6/1/98). Observations are at the student - spell level, thus if someone attended two schools during this period, they are counted twice.
Sample Size: 1,378 student spells (1,086 students).
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area. Quarter-credits were converted to semester-equivalent credits by dividing by 1.5; non-credit and training hours were converted by dividing total number of hours attended by 25.

Almost 76 percent attended classes in the evening (including the 14 percent who attended classes in both the evening and day), and 22 percent reported participating in an educational activity that took place on the weekend (including the 15 percent who attended both weekday and weekend classes).

In Chapter 3 we reported that students most frequently cited "finding the time to do homework or out-of-class work" as a barrier to obtaining additional education. Students who were surveyed were asked how much time they spent studying each week. As can be seen in the top panel of the second page of Exhibit 4-3, 48 percent of students reported studying six or more hours a week during their program, whereas less than 6 percent report not studying at all for their education and training activity.

The next few panels of the exhibit show the status of students in terms of degrees or certificates earned and whether they were continuing their program or no longer participating at the end of the follow-up period. Over a third had received a degree or certificate, most frequently a professional certificate (11 percent of all students), a post-baccalaureate degree, or a post high-school training certificate (6 percent each). At the end of the follow-up period, over half of the students (55 percent) had completed their program. Thirty percent were still in the midst of their learning activity and another 15 percent had not completed the program, but were not currently attending. The largest share (30 percent) of those who had completed their program were from two-year schools,[3] as was the largest share (52 percent) of those who had discontinued their program. The largest proportion of continuing students were in four-year schools (36 percent), followed by students at two-year schools (27 percent) and graduate schools (23 percent).

In our review of the literature on barriers, we found that transportation or the distance to a school was cited as a barrier in some studies (e.g., see Dillman *et al.* 1995). The last page of the exhibit shows the distance students had to travel to get to their school or training institution. A majority (52 percent) reported having to travel 11 or more miles each way, including 18 percent who reported they traveled more than 20 miles. The average one-way distance was 14 miles. Nearly everyone reported driving their own car to their class (89 percent); less than three percent used public transportation.

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3 In addition to the 37 percent who graduated, another 17 percent of students had completed their program, but did not report receiving a degree or certificate.

Overcoming Barriers to Participation in Education and Training Programs

In our review of prior research, the cost of additional education was consistently identified as a major barrier to participation. In this section, we first examine the tuition and other course-related expenses encountered by students, followed by a description of the financial aid and other help they received in paying these expenses. Next, we investigate the lifestyle adjustments people who participated in an education or training program made to overcome the barriers they encountered. Then, we examine the reasons respondents gave for not completing a program they started. These can be thought of as barriers encountered after the participation decision was made, but before the program was completed. Finally, we analyze responses to questions on select school-provided services that respondents consider very important and the features of federal loan programs they consider important. These responses suggest services that may help mature incumbent workers overcome barriers to participation in education and training programs.

Education-related costs and sources of payments. Exhibit 4-4 shows the various costs students incurred in order to participate in an education or training program. The top panel shows that 41 percent of students had tuition costs below $500, including 10 percent who reported no tuition cost. At the other extreme, 14 percent reported tuition costs in excess of $5,000. The remaining 45 percent were relatively evenly distributed between $500 and $5,000. On average, tuition cost was $2,261; however, this is somewhat skewed by the extremely high costs incurred by some respondents in the above $5,000 category.

Exhibit 4-4 also shows the other direct costs incurred by students: costs for books and course-related materials and transportation costs. As can be seen in the second panel, a majority of students had no book and course-related expenses (27 percent) or expenses less than $100 (also 27 percent). At the other extreme, 14 percent reported these expenses were over $500. On average, books and course-related expenses were $259 per student, roughly 10 percent as large as the average tuition cost. Weekly travel costs were small for most people, although 18 percent had costs of over $25 per week, an amount that can add up over

Exhibit 4-4
Education and Training Costs

Expenses	Percent/Mean Cost
Tuition and fees	
$0	9.6%
$1-500	31.3
$501-1,000	15.3
$1,001-2,500	17.1
$2,501-5,000	12.5
$5,001+	14.2
Mean cost	$2,661
Books and course related materials	
$0	27.1%
$1-100	26.5
$100-250	16.6
$250-500	15.6
$501+	14.2
Mean cost	$259
Travel to school (per week)	
$0	7.7%
$1-6	16.8
$6-12	23.1
$12-18	13.7
$18-24	10.9
$25+	17.8
Mean cost	$19

Source: Lifelong Learning Demonstration Follow-Up Survey.
Sample Definition: Survey respondents who attended education or training institution in follow-up period (7/1/96 to 6/1/98). Observations are at the student - spell level, thus if someone attended two school's during this period, they are counted twice.
Sample Size: 1,378 student spells (1,086 students)
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area. Weekly travel costs were estimated by multiplying the cost of round trip to school times the number of times per week the student reported going to school. The costs for people who drove their own car to school were assumed to be 31 cents a mile (the IRS-specified amount that can be deducted for qualified travel expenses); 15.5 cents for people who shared a ride; reported amount for people who used public transportation or a taxi; and zero for people who walked or rode to school.

the course of a program.[4] At the other extreme, 8 percent of students had no monetary travel costs. The average cost was $19 per week.

Another potential cost of participation in education and training programs is the cost of child care. While we were not able to discern which child care expenses were due to educational activities and which would be incurred otherwise, Exhibit 4-5 shows weekly child care expenses, by type of arrangement, for adult students. Nearly half of the students with children under age 14 (and nearly 20 percent of all students) incurred child care expenses during the follow-up period. Of the students who paid for child care, the most common arrangements were day care centers (28 percent), followed by babysitters (27 percent), home day care providers (23 percent), and after-school care programs (10 percent). The costs per week of these child care services ranged from $70 for a babysitter to $103 for a day care center. Child care arrangements that did not fit into the above categories or were not reported by the respondents were used by 12 percent of students who paid for child care, at an average weekly cost of $111.

Help paying for school and training expenses. Exhibit 4-6 shows the sources and amounts of financial aid, employer assistance, and family help in paying for education-related expenses. Only about 12 percent of the adult students applied for financial aid; most of those who applied, 10 percent of all adult students, were awarded financial assistance. Students were about equally likely to obtain loans or receive scholarships and grants; about 5.5 percent of students received each.

The federal government was the primary provider of loans (66 percent of loans) and scholarships or grants (56 percent) with a substantial proportion of students receiving a grant or scholarship from the state (39 percent) or their school (31 percent).[5] The average loan amount, over $5,000 dollars, was more than twice as large as the average scholarship or grant.

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4 Weekly travel costs were estimated by multiplying the cost of a round trip to school times the number of times per week the student reported going to school. The costs for people who drove their own car to school were assumed to be 31 cents a mile (the IRS-specified amount that can be deducted for qualified travel expenses); 15.5 cents for people who shared a ride, the reported amount for people who used public transportation or a taxi; and zero for people who walked or rode a bicycle to school.

5 Some students reported multiple sources for financial aid during the follow-up period.

Exhibit 4-5
Paid Child Care Arrangements Used by Students

Description	Percent/Mean Cost
Students with children under age 14 in 1998[1]	39.2%
Paid child care arrangements (of those with children of age < 14)	49.0%
Type of child care (for those with paid child care)[2]	
Day care center	27.5%
Mean cost per week utilized	$103
Babysitter	27.0%
Mean cost per week utilized	$70
Home day care provider	23.3%
Mean cost per week utilized	$88
After care program	10.0%
Mean cost per week utilized	$81
Other arrangements	12.1%
Mean cost per week utilized	$111

Source: Lifelong Learning Demonstration Follow-Up Survey.

Sample Definition: [1] Survey respondents who attended education or training program in the follow-up period (7/1/96-6/1/98).
[2] Data is at student arrangement type level, i.e. for each student, multiple child care arrangements of the same type were counted only once whereas multiple arrangements of different types were counted as many times as the number of types of arrangements (up to three). Mean of cost per week for multiple child care arrangements of the same type was taken as the cost per week for the arrangement of that type for each student.

Sample Size: [1] 1,086 students.
[2] 242 student arrangement types (201 students).

Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.
Other arrangements include au pair or nanny and unspecified arrangements.

Exhibit 4-6
Sources of Payment for Education and Training

Experience		Percent/Mean Cost
Applied for financial aid		11.5%
Received financial aid		9.5%
Received loans		5.3%
Federal government	66.2%	
State/local government	4.0	
School/training institution	18.2	
Private or unknown source	27.8	
Mean amount per recipient		$5,056
Received grant/scholarship		5.6%
Federal government	56.1%	
State/local government	38.8	
School/training institution	31.4	
Private or unknown source	15.2	
Mean amount per recipient		$2,430
Received Assistance from Employer		41.1%
Mean amount per recipient		$2,916
Received Assistance from Family		5.4%
Mean amount per recipient		$1,631
Received Tuition Waiver		10.3%
Mean amount per recipient		$2,320

Source: Lifelong Learning Demonstration Follow-Up Survey
Sample Definition: Survey respondents who attended education or training institution in follow-up period (7/1/96 to 6/1/98). Observations are at the student - spell level, thus if someone attended two schools during this period, they are counted twice.
Sample Size: 1,378 student spells (1,086 students)
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area. Financial aid recipients can report more than one source for loans or grants/scholarships so the percents may not sum to 100 percent.

The most common source of financial assistance was the student's employer: 41 percent of all students reported receiving employer assistance. The average amount of employer assistance per recipient, $2,900, was even larger than the average scholarship or grant ($2,430). Just over 5 percent of all students received assistance from their family, usually a gift, averaging over $1,600 per recipient. Finally, 10 percent of students reported getting a tuition waiver or reduction worth an average of almost $3,000 per recipient.

Lifestyle adjustments. Respondents were asked about 10 different lifestyle adjustments regarding time, spending, or their schedule that they may have made in order to participate in an education or training program. Their responses, interpreted as steps they had to take to overcome barriers, are shown in Exhibit 4-7. The three most common lifestyle adjustments, each cited by more than 60 percent of students, were all related to the reduction in available time when participating in an educational activity: a reduction in leisure activities, time spent with friends, and time spent with their family. The next most commonly-cited adjustments related to cutting down on expenses: 45 percent reporting a reduction in leisure activities to save money and 33 percent postponed a major purchase or vacation to save money. In addition, 27 percent reported they had to reschedule their work hours and 16 percent had to cut down on the hours they worked to accommodate their educational schedule. Students clearly made sacrifices to obtain the potential benefits of additional education or training.

In addition to adjustments students themselves made, we asked if other household members had to do more of the household work or work more hours for pay to facilitate their participation in school. Over one-third reported that other household members had to do more of the work around the house and 8 percent reported household members worked longer hours to help cover expenses while they were in school.

While not a complete list of the potential sacrifices made by household members of students, these responses are an indication that students themselves are not the only ones who have to make sacrifices so they can participate in a school or training program.

Reasons for not completing the program. As reported earlier, 15 percent of students who did not graduate or complete their program were no longer attending at the time of the survey.

Exhibit 4-7
Lifestyle Adjustments Required to Attend Education or Training Program

Lifestyle Adjustment	Percent Making Adjustment
Reduced leisure activities due to time constraint	68.9%
Spent less time with friends	68.3
Spent less time with family	61.9
Reduced leisure activities such as going to the movies or eating out to save money	45.3
Postponed the purchase of things such as a car, new household items, or a vacation to save money	32.9
Rescheduled work hours in order to attend school	26.9
Reduced the number of hours worked per week	15.6
Moved to a place with lower rent to cut down expenses	4.9
Moved to a place with more convenient access to the school	4.9
Sold some possessions such as furniture, stereo, or a car to pay for school	3.3
Household members did more of the household work because respondent in school or training	35.4%
Household members worked more to cover expenses while respondent in school or training	8.3

Source: Lifelong Learning Demonstration Follow-Up Survey
Survey Question: I would like to ask you about any lifestyle adjustments you may have made as a result of **attending school** since July 1, 1996. Please answer with a Yes if you made the adjustment I read or No if you did not make the adjustment.
Sample Definition: Survey respondents who attended education or training program in follow-up period (7/1/96-6/1/98)
Sample Size: 1,086 students
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.

As can be seen in Exhibit 4-8, one fourth of the students reported they were just taking a break or were between courses at the time of the interview, and 8 percent had transferred to another school or training program. Thus, fully one third of this group intended to continue their educational program. One fifth reported they never intended to complete the program, but just planned to take a few courses. The next most frequently cited reasons for discontinuing their program were inability to pay for it (20 percent), job-related demands (19 percent) and family or household responsibilities (17 percent). These latter reasons can be interpreted as barriers encountered (or at least barriers no longer able to be overcome) after the participation decision was made, but before the program was completed. These actual reasons for discontinuing a program are consistent with the perceptions of barriers to obtaining additional education reported by all students and potential students in Chapter 3.

Important school services and loan features. Students, applicants, and potential students were asked about the importance of services potentially available at schools and training institutions: job placement assistance, career counseling, academic counseling, assistance in learning about and applying for financial aid, and tutoring for course work. Their responses are shown in Exhibit 4-9, tabulated separately for each of the three groups. Each of the services was rated as very important by approximately one third of the students, with the exception that tutoring assistance was only rated as very important by 24 percent of them. Responses of potential students were similar, although they were statistically significantly more likely than students to rate academic counseling and learning about financial assistance options as very important. Over half of the students and potential students (57 and 62 percent, respectively) rated at least one of these services as very important, as did the overwhelming majority (85 percent) of applicants. Of those who rated any of these services as very important, over two-thirds of each group said the most important time for these services to be available was on weekday evenings or weekend days. Schools and training institutions that want to attract adults need to arrange their schedules to accommodate the needs of working students.

Respondents were also asked how important certain processing and loan repayment features of federal loan programs were to them when they applied, or if they were to apply, for financial aid.

Exhibit 4-8
Reasons for Not Completing Program

Status/Reason		Percent
Status of education spells as of June 1, 1998:		
Continuing spells		30.4%
Successfully completed spells		54.7
Not currently enrolled, program not completed		14.8
Taking a break/between courses	25.3%	
Only intended to take a few classes	21.0	
Unable to finance education or training	19.9	
Job-related demands	19.0	
Family or household responsibilities	17.4	
Transferred to another school or training program	7.6	
Did not pass test or course	6.9	
Program not what you wanted; lost interest	6.5	
Illness or disability	4.6	

Source: Lifelong Learning Demonstration Follow-Up Survey
Survey Question: What were the primary reasons you did not complete the program? Circle all that apply.
Sample Definition: Survey respondents who attended education or training institution in follow-up period (7/1/96 to 6/1/98). Observations are at the student - spell level, thus if someone attended two schools during this period, they are counted twice.
Sample Size: 1,378 student spells (1,086 students).
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.

Exhibit 4-9
School Services Cited as "Very Important"

School Service	Students	Applicants	Potential Students
Job placement assistance	34.8%	26.8%	32.4%
Career counseling	33.3	37.4	37.4
Academic counseling	32.8	47.4	39.0*
Assistance in learning about and applying for financial aid	32.7	42.9	41.8***
Tutoring for course work	24.3	31.8	25.0
At least one of the above services	57.0	84.6**	62.0
Most important time for those services to be available (of those who said at least one service "very important"):		*	
Weekday evenings	57.0%	51.5%	51.6%
Weekdays	18.0	6.9	16.0
Weekend days	14.6	18.1	15.0
Weekend evenings	3.6	0.1	5.2
Does not matter	6.7	23.5	12.3

Source: Lifelong Learning Demonstration Follow-Up Survey.
Survey Question: I'm going to read you a list of some services that ate sometimes provided by schools. Please tell me whether each service (would be/is) very important, somewhat important, or not important to you.
Sample Definition: Survey sample respondents who applied to or attended educational training institution in follow-up period (7/1/96-6/1/98) or were considering attending one in the future. Applicants had applied for, but not attended school during follow-up period.
Sample Size: 2,081 (1,086 students; 49 applicants; and 946 potential students).
Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.
* Statistically significantly different from student group at .10 level (chi-square test); ** at .05 level; *** at .01 level.

As can be seen in exhibit 4-10, the feature most frequently cited as very important— by at least three-fourths of students, applicants, and potential students—was "having to complete only one application for all types of federal assistance." The second most frequently cited feature, rated as very important by about two thirds of each group, was loan consolidation, followed by having the federal government disburse the aid check directly to the school rather than the student having to bring the award notice to a bank for processing. All three of the top-cited items are features that make the process less cumbersome or reduce the time spent in receiving and paying back the loan. Although less frequently cited as very important, a substantial 35 to 45 percent of students and potential students also rated loan repayment options, such as income-contingent repayment, extended repayment, and tiered repayment, as very important features of the loan repayment program.

Summary

This chapter has described the characteristics of mature incumbent workers who participated in education and training programs during the follow-up period (July 1996 to June 1998), their schooling experience, and the barriers they encountered in pursuing their education program.

Approximately one sixth of the workers in our representative sample of mature incumbent workers in Greater Baltimore participated in a formal education or training program lasting more than two weeks during the follow-up period (excluding training provided by their employer at their place of employment). Nearly three-fourths of the students had at least some college education at the beginning of the follow-up period, over half were married, and a similar proportion were over the age of 35.

More than 70 percent of the students worked for employers who offered tuition reimbursement. Consistent with the findings in Chapter 3, the students tended to be younger and more highly educated than non-students, and were more likely to be female, single, and to have an outstanding school loan. Students were quite similar to other mature incumbent workers in their racial composition, presence of children in the household, and earnings in the pre-school period.

Exhibit 4-10
Features of Educational Loan Programs Cited as "Very Important"

Loan Feature	Students	Applicants	Potential Students
Having to complete only one application form for all types of federal assistance	76.7%	89.7%	74.8%
Being able to consolidate all school loans into one loan	63.7	68.6	61.8
Getting financial aid check sent directly to school by the federal government, rather than having to take the additional step of applying to a bank and having them send financial aid check to school	52.1	57.9	53.7
Having a lower monthly repayment level the first two years after completing program, then rising to a higher level for the remaining years, rather than repaying an equal amount each month	43.6	57.1	41.6
Having monthly repayments tied to earnings level, rather than fixed monthly repayment amounts	43.3	52.3	44.6
Having the option of taking longer than the standard 10 years to pay back your school loan, recognizing that interest would continue to accumulate on the unpaid loan amount	35.1	42.2	38.0

Source: Lifelong Learning Demonstration Follow-Up Survey.

Survey Question: If you were to take out a loan to finance your education or training costs today, how important would each of the following features of loan program be to you? Please tell me whether each feature is very important, somewhat important, or not important.

Sample Definition: Survey sample respondents who applied to or attended educational training institution in follow-up period (7/1/96-6/1/98) or is considering attending one in the future. Applicants had applied for, but not attended school during follow-up period.

Sample Size: 2,081 (1,086 students; 49 applicants; and 946 potential students).

Notes: All estimates are weighted to represent the corresponding universe or subgroup of mature incumbent workers in the Greater Baltimore area.

* Statistically significantly different from student group at .10 level (chi-square test); ** at .05 level; *** at .01 level.

Nearly 40 percent of the students attended two-year colleges. A quarter went to four-year undergraduate institutions and a sixth enrolled in graduate programs. Private career or training institutions accounted for 19 percent of the students, with another 7 percent attending training courses provided by community-based organizations.

Students in the sample pursued a wide range of programs, with courses in computer and information sciences (21 percent of all students), business and management (17 percent), and education (12 percent) the most common areas of study. Most attended nights or weekends, and over half took less than 6 semester credit-equivalents in a spell of education or training. Over half graduated or completed their program during the follow-up period, and more than a third received a degree or certificate, most commonly a professional certificate or post-high school training certificate. Thirty percent were still enrolled at the end of the follow-up period; only 15 percent had not completed their program and were no longer enrolled.

Mature incumbent workers bore significant costs to participate in education and training. The average cost of tuition was $2,661 during the follow-up period, however 41 percent of tuition costs were below $500 and only 14 percent were above $5,000. In addition to tuition costs, students paid an average of $259 for books and course materials and $19 per week in travel costs. The cost of child care arrangements used by students varied from $70 to $111 per week.

The most important source of assistance in meeting these costs was tuition reimbursement by employers; over 40 percent of the students received an average of $2,916 each from this source. Over 80 percent of those who applied for government or school financial aid received it, but only a small proportion (12 percent) applied for this type of assistance. Loans from these sources averaged $5,056 and grants or scholarships averaged $2,430.

Students reported that they had to make a number of lifestyle adjustments in order to participate in education or training. The most commonly cited sacrifices, each named by more than 60 percent of the students, were reductions in the time available for leisure time activities and to spend with their families and friends. Smaller proportions reported cutting back on leisure activities or major purchases in order to save money for school. Only about a

quarter reported that they had to reschedule their work hours in order to attend courses, and a sixth said that they had to reduce their work hours.

When asked to identify the most important services that schools could provide for working students, about equal numbers named job placement assistance, career counseling, academic counseling, and assistance in learning about and applying for financial aid. Nearly three quarters felt that it was very important that these services be available on weekends and at night during the week. The school loan features most frequently cited as very important were those that make the process less cumbersome and time-consuming: having a single application for all types of Federal assistance, loan consolidation, and direct disbursement of government checks to the school. Smaller, but still substantial proportions of students (35 to 45 percent) felt that flexible repayment options, such as income-contingent repayment, extended repayment, and tiered repayment, were very important loan features.

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